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CABINS COTTAGES AND SUMMER HOMES

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THE THEORY OF PLAY

CABINS COTTAGES AND SUMMER HOMES

BY

BERNARD S. MASON and FREDERIC H. KOCK

A. S. BARNES & COMPANY · NEW YORK

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CABINS COTTAGES AND SUMMER HOMES

CHAPTER I

THE CABIN AND ITS SETTING

THE LONGING that all men have at some time in their lives for a cabin or cottage in the wildwood is wholly and altogether normal. For a cabin in the wildwood is a home in man's native land. Throughout the countless ages of his sojourn on this old world, man has belonged to the wilderness, and the wilderness has belonged to him. There the physical being best lives and prospers, and there the spirit finds its fullest peace and serenity —there the man-creature finds that well-being that comes to all animals from living in their native environment. To return periodically to the open country, with its vastness of space, its freshness of air, its closeness to the things that grow, its freedom from artificiality is, in a sense, to return home.

The exigencies and contingencies of modern living have forced man far from his native realm into a world of mad and whirling things. The rush and hurry, the exacting demands of efficiency, the monotonous repetition of meaningless tasks, the unceasing use of the higher nerve centers, the day-long use of small muscles rather than large—these man can endure, but not for long, without respite. The unvarying grayness of concrete walls and pavement, the nerve-racking clatter of repellent noises, the smog and the smoke and the fume-filled air—against all this the esthetic spirit soon rebels. It may be a world of thrill and challenge to some, it is a world of deadening and defeating monotony to others, but to all, it is a world from which escape must periodically be found.

Then it is that the city-dweller turns to the wildwoods, the lakes, the mountains, the open country of whatever type, there to find "escape in a life rich in simple and colorful things—green fields, rippling waters, sunlight on stirring leaves, the mirror magic of lakes, the sighing of pine tops. The thick woods, the darkness, the queer noises stir the imagination of childhood days, and the wild free self is aroused again. He drinks in the wine of the sunset, and is lulled to sleep by the sweetest symphony in all the world, the patter of raindrops on the tent roof. From the prose of city, man turns to the poetry of the wilds." [1]

A few there are who, blessed with an abundance of the world's goods, can dwell in country estates and retain a town house for their city sojourns. Others less fortunate who must labor there, and of necessity find themselves anchored down within the city's bustling radius, move farther and farther out as their prosperity increases, into the uncrowded suburbs, where the air now and then has a faint tinge of the open spaces, and where there is hope now and then of a little contact with the good earth, even if it be artificially landscaped and greened. All this is still a far cry from the lushness of the timber lands and the virgin quality of the far wild places. All this helps to make city dwelling bearable, but it does not satisfy that wildwood longing.

Fortunate indeed is he who has a woodland or skyline cabin or cottage to which to go often for balance and sanity and for sheer relaxation and joy. But more fortunate still is he who is about to build one, for ahead of him is not only the joy of zestful days of outdoor living, but the deep satisfaction that stems from constructing and creating and bringing into full bloom his dream home in the wilds. For once the cottage is fully and satisfyingly completed, paradoxically something of its charm has already flown, for the spirit of becoming, the spirit of its growing days, has departed into the staidness of maturity. Wise is he who does not, in mad modern fashion, rush his house to its fast completion, but who builds it slowly, stage by stage, letting it grow under his cultivating hand, and growing with it. Thus it is always in the stage of becoming, the growing days of its youth never over. The growing pains may be thus prolonged but the diseases of sedate maturity are thus forestalled.

[1] E. D. Mitchell and Bernard S. Mason, *The Theory of Play*, 305. New York: A. S. Barnes and Company, 1934.

BETWEEN CABINS, COTTAGES AND SUMMER HOMES

The terms, *cabins, cottages* and *summer homes,* are used in various ways and with varying meanings. Because of the log-cabin tradition in America, the word cabin has been associated with logs for so long that to many the mere suggestion of a cabin brings to mind a log structure, usually a small one of the pioneer type. Indeed, so indelible is the association that there is a tendency to refer to any log building, regardless of size, as a cabin, including even the huge resort lodges with lounges, dining rooms, and a second floor of sleeping rooms. On the other hand, the small dwellings of the natives in the back country, comparable in size to the pioneer cabins, if of other materials than logs, are often dubbed as shacks or shanties. Moreover, a neatly constructed little frame building at a lake-shore resort is usually referred to, not as a cabin, but as a cottage.

In this book the differentiation between cabins, cottages and summer homes is based on size and pretentiousness, not on the materials used in construction. A cabin is here regarded as a small, simply built dwelling, usually of one room but occasionally with partitions and extensions, regardless of the material of which the walls are made, whether it be logs, stone, adobe or lumber. A cottage is a larger and more refined, yet simple structure, of three or four rooms, suitable for family vacation use, which again may be made of any material. Summer homes are more elaborate, open-country dwellings in which the family and its guests may find roomy and comfortable accommodations and many of the conveniences to which they are accustomed in their city houses.

SELECTING THE SITE

The first consideration is that you yourself like the spot, that you are in love with everything about it, from sand and bowlders and the vegetation underfoot and all around, to the vista of the distant look. It must be *your* type of spot. Like the clothes that one wears and the things with which he surrounds himself, his cabin site becomes an extension of his personality. It reflects his taste and throws light on the kind of person that he is. All the sales statements of the real-estate agents to the contrary, if you do not like it and like it fervently, it is not for you. If you do, it is, other things being

equal—but these other things must be well-considered, for there are practical considerations beyond those of beauty and personal liking.

Accessibility.—The first of these practical considerations is accessibility. When America became a nation on wheels, vacationing areas became easily accessible that hitherto were quite beyond the range of reason. Whereas the distance to one's country or woodland place was then measured in tens of miles, it could now be thought of in terms of hundreds of miles. And when America became a nation on wings, these hundreds were turned into thousands of miles. But in spite of this ease and speed in covering distance, accessibility still remains a major consideration.

Who among paddlers of Ontario waterways does not have fondly fixed in his memory some little wooded island reflected in the mirror-magic of some fish-pregnant lake, on which he envisions the cabin of his dreams? Such a spot, however ideal it may otherwise be, must be evaluated in the light of the fact that, from most points in the United States, one or two summer trips a year to it would usually be all that could be made. A less romantic location nearer home might facilitate several trips, and perhaps many week-ends of enjoyment. All this is to say that accessibility must be considered in terms of the use to which the place is to be put. If for summer-vacation use only, 500 miles is within reasonable motoring distance in well-highwayed regions. If for frequent year-around use as a country retreat, 50 to 100 miles would normally be the limit. One must first decide in his own mind the major purpose his place is to serve. The most beautiful spot in all the world would be an unwise choice if it will not fill this purpose.

The location must also be considered from the standpoint of the hauling in of the building materials, remembering that its accessibility is a factor affecting the type and size of the house that can be constructed. And again, from the standpoint of the distance off the public highway if one plans to drive his car to the door—private roads for all-weather use, however primitive they may be, prove costly.

Water Supply.—The trail-wise camper looking for a place to pitch his overnight tent keeps an eagle eye out for wood and water, and between the two, he will usually locate close to the wood supply, figuring it easier to carry water if need be than firewood. In choosing a cabin site, however, the water supply far overshadows the fuel, indeed transcends all other considerations,

for, if safe water in ample quantities cannot be guaranteed beyond question, the site immediately eliminates itself. Once the desired location is found, the first move is to settle the water question. Lake water is drinkable only in the remote wilderness, and even there, it may be drinkable today and unsafe for use five years from now. It is animal contamination, particularly human contamination that makes water unsafe for use. For this reason, reliance should never be placed on flowing streams, however clear, cool, and inviting they may appear, for one cannot be sure what the conditions are, and will be, upstream. If a well is to be dug or driven, it should be done before work on the building starts to make sure that water can be struck. Springs from living rock may be considered safe, but if in soil, the water should be tested before going to the trouble of boxing it in. This service can usually be obtained from the health department of your state. If the supply of drinking water is scanty, and a stream is to be relied upon for other water needs, it must be remembered that it may flow lustily and with bulging banks in the spring and early summer, only to dry up completely, save for an occasional stagnant pool, in August.

Drainage.—The final major consideration is drainage, a matter which one may think can be settled by one quick glance at the terrain, but it must be kept in mind that, as it is today, it may not be tomorrow when nature changes her temper. If you are first introduced to the spot in the summer, as is usually the case, you are meeting it when nature is in her most reasonable mood. Ground now solid and dry may appear like a pond, or resemble a cedar swamp, at other seasons.

The banks of streams are particularly hazardous, forcing the cottage back onto higher land, however far from the inviting water it may be. The level wooded flats so lovely in summer sunshine are almost certain to be the floor of racing torrents when the spring floods come down—one must ascertain the highest point where the overflow from the bulging banks has ever reached. Similarly, it is seldom wise to hug a lake shore too closely, especially if it is a large and rugged lake given to kicking up, for storm-driven waves on one's front porch are not conducive to contentment. A short distance back will sacrifice but little in the way of pleasant breezes, yet will protect much from heavy winds. And it will provide privacy, for the shore-line is the highway of curious and noisy paddlers.

On all matters of water, both of scarcity and overabundance, the opinions of the natives are invaluable and should be sought. They know from long acquaintance whether the bubbling brook dries up in midsummer, whether the stream overflows in spring, how high the lake waves roll, and how swampy the levels become.

The danger of floods and overflows eliminated, the thing that counts is that the lodge be placed on ground high enough in relation to its surroundings so that there is drainage away from the structure.

About Trees.—Let us hope the cabin or cottage is among trees. Now and then one sees a cabin in the lake-and-woods country standing alone in the center of an open field-like space, exposed mercilessly to the blazing sun and driving winds, all the lushness and the freshness of the growing things replaced by barrenness. Why? Some there are who seem impelled, upon procuring a woodland site, to slash and cut, as quickly as possible to denude it of one of its chief charms, and turn it into a city-like lot. Even in the city, trees and shrubbery are sought and dearly paid for; we go to the open country to live among them. Let not a single tree be molested needlessly, yet on the other hand, in our enthusiasm to retain the sylvan beauty and primeval quality, it must be remembered that trees are sometimes a hazard.

If thick second-growth timber surrounds the cabin closely, it should be thinned out somewhat for some distance around, in order to let in the sunshine and eliminate the dampness that will hasten decay. Particularly on the side of the morning sun should it be thinned. But thinning has never been defined as meaning denuding!

Large trees within "timber" reach, especially if they are on the windward side, are a major hazard and must be carefully assayed for soundness, if indeed they can safely be left at all. The writer recently helped clear away a magnificent virgin maple which, storm-blown, had crashed across the ridge of a lake-side cabin. Full-grown trees in the thick of the woods will usually withstand the mightiest blasts of nature, but when the protecting trees around them are cleared or thinned away, even the soundest trunks may give way before the blasts. If the cabin cannot be placed out of range, or at least on the leeward side in the relation to the storm winds, the large trees within range may have to be sacrificed for the sake of safety.

TAKE TIME IN PLANNING

The decisions are many that must be made in staking out the cabin, in determining on which side to extend the porch, where to place the largest windows so as to get the best view, the most sunshine, the coolest breezes. . . . There is nothing so rewarding in settling these matters as time. You should, if possible, spend the full season in which the cabin will be in use, living on the spot, in a tent if need be, before breaking sod or removing a single tree. Then you will come to know your site in all its changing moods of season and weather. It will grow on you as you get to know it intimately, and worrying questions will seem gradually and naturally to answer themselves.

There is no need to rush the task through to hasty and, perhaps, regretful conclusion—it is the planning and the building of it, more than the using of it, that brings the greatest joy. A season of planning and anticipation, spent on the spot, is not a season lost—it is its own reward in that it will be in itself a consummately happy and purposeful season, and it will permit you to go ahead with confidence and with full assurance that your decisions are right. Once the cabin is erected, it cannot be moved or easily changed. You are not putting up a mere shelter as in pitching a tent, but a permanent summer home. Time on the spot in planning and imagining and dreaming is better than regrets later on.

CHAPTER II

SELECTING THE TYPE

IF THE authors were to play the role of architects, and you their client, there are three questions we would ask you at the outset:

First, for what purpose do you intend to use this cabin?

Second, how many must it accommodate?

Third, how much do you wish to spend?

Let us take these up in order:

Do you merely want shelter for yourself and your wife, or perhaps yourself and a crony or two, in the hunting-and-fishing country, which you can use as a base for your fishing and hunting trips? Or do you want a cottage in which your family can live comfortably in a manner somewhat comparable to home? In other words, do you go to the open country primarily for its activities, such as hunting and fishing and canoeing, and regard your cabin merely as a place to stay while engaging in these sports? Or do you go seeking to live casually and more or less normally, with the major interest centering around the life in the cabin and its immediate surroundings? If the first is the case, a simple hunter's cabin of the traditional type might suffice. If the latter, a cottage of more refinement, of more pleasing lines, and with more conveniences may be required.

Another way of putting this same question is, how much roughing it are you prepared to do, and can you do cheerfully? Those unaccustomed to backwoods living and backwoods conveniences, or lack of them, may find the open country more attractive and perennially inviting if more of their

familiar conveniences are imported, and more of the roominess and privacy of "civilized" dwellings provided. The trail-hardened camper, on the other hand, may find a one-room cabin, with its built-in bunks, its board table and its rough-made benches, not only adequate but quite luxurious. This cabin we are contemplating is for pleasure—it is to be a vacation home—and as such it must, first of all, conform to the ideas of pleasure of the particular people who are to use it.

Again, is it a summer home that you want, where you can entertain extensively, where house guests will be the rule, and where your friends and their families, in sports attire, may gather often for weekend house parties? That is something quite different again.

This question of the purpose for which you are to use it, and the degree of primitiveness desired or acceptable, will go a long way toward settling the choice between a cabin, a cottage, or a summer home.

Next, how many must it accommodate? This, of course, gets down primarily to a question of sleeping quarters, and brings us right back to the previous question—the kind of accommodations you and your friends require. Four or more people might sleep in one room and like it, and again each of these might require a private room to keep his disposition sweet. One ought to expect to be a little cramped in a camp cottage, but on the other hand, the excitement of a slumber party is apt to lose its thrill after the second night.

The question of the amount you wish to spend must square with the amount of cottage you require, a statement that may seem so obvious on the face of it as to appear naïve, yet, as any architect will tell you, most people expect more house than their money can buy. There should be no illusion of cheaper costs in the outlying places, for the truth is far over at the opposite pole—one's construction dollar will usually go less far there than in the city.

These three questions—the purpose the cabin is to serve, the number it must accommodate, and the amount of money to be spent—you, and you alone, can answer. Having answered, we, as your architects, can take over and help on the remaining questions. A little compromising may be necessary—you may have to make the cottage a little more primitive, or a little smaller, or pay a little more than you had planned. But eventually the three

can be brought into reasonable harmony and this much of the planning frozen down so that we can proceed together with the more interesting task of creating a wildwood home that you will be proud to call your own.

OF WHAT MATERIALS

Two factors affect the selection of the materials from which the cabin is to be constructed, whether of logs, stone, finished lumber, adobe, or whatnot —*first*, your personal taste, for it must be appropriate to you, and *second*, its setting, for it must be appropriate to the locale. This second consideration is of such significance that it cannot well be ignored, regardless of what one's personal likes and preferences are.

The governing principle, both in architecture and material, for a wilderness or open-country building, is that it be in harmony with its natural surroundings. The city building should be so conceived as to achieve a dual harmony, with the plot of earth on which it stands, and with the man-made surroundings in which it is submerged and which are often so all-prevailing as to obliterate the natural. In the camp setting, the preponderance of nature, and the absence or insignificance of the man-made, leaves but the one harmony. So intimately should the structure blend with all that is around it, above and below it, that it gives the feeling of having grown from the soil.

In style of architecture, this native harmony is usually best achieved by that style which is commonly, even if inadequately, referred to as *rustic*. Quite the opposite from implying coarseness or lack of refinement and good taste, the rustic suggests simplicity, freedom from undue sophistication, and the pleasingly irregular lines of nature, combined with that pioneer quality that suggests the handmade rather than the machine-tooled.

In materials, it suggests those native to the locality. In the American tradition, one's thoughts invariably turn to logs, and in the wooded areas there is no gainsaying their supreme appropriateness. But when we encounter a log cabin in the tree-sparse Southwest, made of imported timber, it appears as out of place as would an adobe building in the Northwoods—not that it is in itself discordant, but that it does not *belong*. Similarly, a rock cottage that arises as part of the very structure of the earth in one locality might appear as incongruous and bizarre as a hula skirt on Fifth Avenue in another.

Whatever is native is appropriate, generally speaking, but that which is native may not always be practical. Wooded areas suggest logs, yet logs may not exist in sufficient abundance, and suitable ones may require far search and expensive hauling. Moreover, and this contrary to popular ideas on the matter, log cabins are expensive. If you have the logs on your place, that is a different matter, but purchased of the appropriate size and kind, cut, trimmed and delivered, the cost may be startling. Logs are valued according to the amount of lumber that can be obtained from them. Conditions vary too widely to permit generalization, but unless back in the wilderness and off the beaten path, it will usually be found that the cost of logs, plus the slowness with which the walls grow up, make of the log cabin far and away the most expensive of the appropriate types. When logs of the needed sizes are scarce, one may have to abandon the usual log-cabin type of construction and turn to the stockade type, which uses smaller poles placed vertically, or even to slab or half-log construction which stretches the logs farther. Or he may find it advisable to consider mill-processed slabs so made as to resemble logs. Indeed, a frame house of sawed lumber may be the only practical resort, but this need not be too discouraging for, properly designed and appropriately colored, it may be caused to blend into its woodland setting with surprising sympathy.

Whatever the type of material, and however pretentious the cottage is to be, the principle never to be forgotten is that, in the open country, the building should subordinate itself to the environment. The man who would make a show place of his house itself, thus to impress his neighbors, would do better to confine his efforts to his city dwelling. It is nature's handwork that is to be emphasized and pointed up, not that of bumbling man, and the more stirring and satisfying the natural setting, the more inappropriate does the overconspicuous and boastful building appear. Overbuilding for the setting, like overdressing for the occasion, offends good taste; it arouses the feeling that the builder's sense of values must somehow be awry. This is not to argue against size and attractiveness of dwelling, if a large size be needed or desired, but rather stoutly to maintain that the structure should settle down into the natural environment quietly and gracefully, as though a native part of it, and not a foreign intrusion, replacing or overshadowing it, as if to cry aloud of its own magnificence.

Not only the materials of which it is made, but the design, the decoration, and the landscaping can contribute to, or detract from, this feeling of at-homeness with nature. Low elevation and horizontal rather than vertical lines seem better to harmonize in most settings. Massive settings, as in mountainous regions, require massive lines—there, delicate architecture would attract attention unsympathetically. When the building is completed, if it seems to stand out obtrusively, thus to pull the eye too exclusively to itself, its glare can be softened by shrubbery to break the foundation lines, and appropriate coloring of its exterior to blend it into nature's background.

One wants his vacation home to be attractive, a thing of beauty in itself. But, paradoxically, it will usually achieve this end better if it subordinates itself to its surroundings, rather than if it forces itself into the center of the scene too boldly.

SELECTING THE PLAN

With these principles in mind, select from the plans presented in this book the building that best suits your taste and fits your pocketbook. A wide variety of plans are given, from simple backwoods hunter's cabins to summer homes of many rooms. In contemplating each of these, let it be remembered that any type of material may be used in its construction, not necessarily the one shown in the sketch. If you prefer a frame cottage, yet the plan best suited to your needs is shown in logs, there is no reason why it cannot be built of lumber. Or of stone, if you prefer. In some cases, minor changes may be necessary, but usually the plans will be found usable as they stand.

The plans for the simpler cottages show adequate detail so that anyone familiar with construction should be able to proceed. In the case of the large summer homes, however, complete construction plans would require many pages of detail. The building of such a home is after all a large undertaking, and if such is decided upon, the plans here given could well be taken to a local architect for advice and completion. It is never wise to attempt an elaborate structure without the assistance of a competent architect who is on the spot and can see the project through.

BUILDING IN INSTALLMENTS

Can the cottage be built a unit at a time, adding to it as needs for space increase, and as the budget permits? Yes, and many are so constructed, with no more of a disadvantage than, in the case of logs, to have the new section appear new for a year or two. For, however carefully the logs may be oiled or stained, time affects their tone, and only time can weather the new into a perfect blend with the old.

The one-room cabin that suffices today may later be expanded by a screened porch on one or two sides, and still later by a sleeping room to one side, or a kitchen to the rear. But if the future holds any possibility of the cabin growing up in this way, the original plan should be drawn to include the finished structure with all of its additions. These extensions may never be built, but if they are, they will then fit into the preconceived plan to create a symmetrical and well-balanced whole. Merely to add a room here and a shed there as the whim may strike is apt to produce a hodgepodge that defies all description. Attractive lines are seldom achieved in that way.

Another, and even more satisfying method for adding accommodations as needs expand is to build the new units separate from the original, as small cabins in themselves. The original structure may then serve as the living and dining room, with guest cabins for sleeping a handy walking distance away. The greater privacy of a separate cabin will be appreciated, perhaps sufficiently even to offset the inconvenience of walking through the rain to the main lodge at such times when the weather fails to cooperate.

FIGURING THE COST

Of the cabin plans in this book, there is no way to state accurately, or even to approximate, the cost, for the reason that costs vary from year to year, and from locality to locality. A cottage that costs $800 in one section of the country may cost $1200 in another. This is particularly true of log construction where such a wide variance in the price of logs is found, depending upon from whom they are bought, the local value put upon them, and the distance they are to be hauled, that no standard can be set.

Any good local contractor, given one of these plans, can figure quite accurately the cost at current prices in vogue in the particular locale. He will

be able to do this for any type of material, giving you the cost for the same cabin built of logs, of lumber, or of stone. Often an experienced local carpenter in the rural districts will be able to supply this information with reasonable accuracy.

As an aid to making an estimate, the cubic footage of the selected plan can be quickly figured from the linear dimensions. By using this cubage figure and multiplying it by the prevailing local cost per cubic foot, you can arrive at a figure which should cover the construction. To this should be added the cost of such furnishings as lighting fixtures, door and window hardware, and heating equipment. The estimate resulting from this method cannot be considered an absolute figure, but will serve as a valuable guide in making financial decisions.

CHAPTER III

LOG CONSTRUCTION

THE TECHNIQUES of building with logs are less generally understood in this urban-minded age than those of other types of construction. Witness the well-known contractors of a certain large city who took it upon themselves to construct a two-story log clubhouse for a summer camp for boys, and encountering difficulty with the walls, visited some local farmers who are building a similar structure nearby—these contractors had never heard of a 12-inch log spike! Happily, in those regions where logs exist in sufficient quantities for building log cabins, local craftsmen can be found who know well the tricks of the log-building trade. With the thought in mind that the help of such as these will be sought, this chapter presents the broad essentials. If more space is devoted to this log chapter than to the chapters on other types of construction, it is because the other types are well understood by carpenters and masons everywhere, whose day-by-day task it is to work at them. If, on the other hand, this chapter is found lacking in full details (which would require a book in itself) it is because it is assumed that the help of your local craftsman will be solicited. For help you must have in the heavy task of manipulating logs.

SELECTING AND PREPARING THE LOGS

Logs can be cut on your own place provided the right kind and sizes exist there, and provided that this can be done without robbing the place of its woodland charm; or one can hire them cut in the vicinity; or they can be

purchased from a logging company and freighted in. The latter course might stand the best chance of producing the just-right logs, but at the same time, they would probably be the most expensive. The price must be figured delivered to the cabin, a fact which argues loudly in favor of near-at-home cutting if possible.

Kinds of Logs.—First off, stay on the *softwood* side, which is to say, use *evergreens* if possible. Among loggers, the term softwood means evergreen timber, the term hardwood, broadleaf trees. The qualities sought after are softness, workability, lightness, durability (freedom from decay), straightness, and minimum of taper—qualities more frequently found in the evergreens.

In the eastern section of the country, the best woods are *white pine, Norway pine, spruce, balsam, Northern white cedar, tamarack,* and *hemlock.* Of these, we can eliminate white pine immediately because of its scarcity, to the point of extinction in some localities where once it was majestically prevalent; even if available, its value as lumber should rule it out. We should stay away from tamarack and hemlock also unless forced up to them, because their relative hardness increases the labor and slows down the job. Norway pine is superb, especially to be recommended for a large cabin because of its remarkable straightness throughout its entire length, and the slightness of its taper. For average use, balsam and spruce are excellent, balsam to be preferred for the walls and spruce for the ridge poles because of its greater rigidity, although both are acceptable for either use, and can be mixed in the same building if need be. White cedar has no equal when it can be taken from swamps where it grows straight and tall, but it will usually be found to have such a devastating taper as to make long lengths difficult to obtain.

Of the eastern hardwoods, if hardwood it must be, *chestnut* is often used successfully. *Oak,* although seen in many a relic of pioneer days, is twisty, requiring that the logs be squared, and even then has a tendency to warp or walk out of place in the cabin walls; it is also hard and heavy, altogether to be avoided. The short-lived woods, such as *birch, basswood, aspen, cottonwood* and *willow* would have to be very thoroughly and repeatedly protected from dampness.

In the western part of the country, *redwood, red cedar, balsam, hemlock,*

and *tamarack* are the usual choices on the Pacific coast, and *lodgepole pine* in the Rocky Mountain area.

There you have it, but as always, it gets down to the question, not of what is best, but what can be had in the particular locality at a price that can be afforded.

Size and Length of Logs.—Eight inches is a good average thickness for the logs, a size easy to handle, conservative of timber, and pleasing in appearance when laid into the wall. By this is meant that the logs will measure eight inches at their middle point, which in most species would indicate about a 12-inch butt and a 6-inch top in a pole 25 feet in length. Larger sizes might be preferable in large cabins, indeed would be necessary if logs longer than 30 feet are needed.

Of particular importance is uniform size. Nothing detracts more than a collection of odd sizes in the same wall, suggesting a cottage made up of picked-up driftwood. A variation of two inches should be the maximum, thus permitting logs six to ten inches to be used when eight inches is the standard, but the nearer uniform they are the better.

The length of the log is determined by the length of the wall, plus four feet to allow for corner extensions. Thus a 20-foot wall would require 24-foot logs.

The number of logs needed for a wall can be figured by dividing the height of the wall in inches by the average thickness of the logs. In making out the order, list the number of poles needed, their length, and either their average thickness or the thickness at the top end.

Peeling.—However appealing the appearance of logs with the bark on may be to you, practical considerations insist that the bark be removed. The charm would be short-lived at best, were the bark left on, for it would immediately begin to loosen and shag off, littering the ground and giving the cottage a ragged and unbarbered look for a long period, and leaving the logs blotched and stained from uneven weathering for all time to come. Moreover, the bark becomes the harboring place of insects to ravish the logs, and a sponge-like collector of dampness to hasten decay, both aggravating the process of deterioration. Those who have lived most intimately with log buildings will not agree to the greater charm of bark over peeled logs anyway. The matter of peeling affects the time of year when poles should be cut.

Time of Cutting.—Going on the assumption that the poles are to be peeled, the time for cutting is in the winter. They should be bucked to length and piled on skids so as to clear the ground, and left until spring. Sufficient moisture remains in them to facilitate peeling once the warmth of spring thaws them out. It is well-known that spring-cut logs peel with exceeding ease, owing to the flow of the sap, but the presence of the sap on the peeled surface often leads to distressing discoloration; only white cedar remains clean and unsplotched. Moreover, sap-coated logs will not take stains uniformly. All of this will offer little concern to the builders of many a backwoods cabin, but if an immaculately clean and uniform finish is demanded, these factors must be considered. In the latter case, a rush job necessitating spring cutting would indicate drawknifing the logs to remove the sapwood, a time-consuming and laborious task at best. From midsummer on, the time varying with the locality, the bark binds so as to defy peeling and makes drawshaving a necessity.

If the bark is to remain on, the cutting can be done any time from midsummer on, when the bark is firmly fixed, but the danger of borers and similar pests argue that it be postponed until after the first freeze. To bind the bark even tighter, the logs should be scored on opposite sides, which means that a two-inch strip of bark should be removed throughout the entire length. The scored parts, the ends, and all exposed spots should then be painted with creosote at once. The sticks should then be stacked loosely to permit contact with the air and left until spring. All this helps to freeze the bark, but for an absolute guarantee, the bark should be nailed with large-headed tacks at intervals of every foot. It is a question of whether you admire the bark enough to want to look at large-headed tacks! Chemical treatments are available designed to kill borers and other bark-housed insects which will postpone and decrease, but not eliminate, deterioration. All of this much ado had best be shelved and the logs peeled.

Preventing Checking.—By checking is meant the appearance of cracks in the logs as they season. This is a natural process and will take place in spite of all that can be done to prevent it. Those with a familiar eye for the rustic find no blemish to attractiveness in these checks in that, ever-present as they are, they seem to belong. Those who would eliminate them can do no more than keep them from showing. Score the logs as described in the pre-

ceding paragraph, taking care to place the scores exactly opposite each other. Let rest for several months until thoroughly seasoned, then remove the remainder of the bark with drawknife. When barked, the most conspicuous checks will be found to appear only along the scoring. These scored sides can then be placed up and down in the walls so as to conceal the checks.

The Skid Pile.—As the logs are hauled to the site, sort them and separate them as to type. Select the prize log of the lot—large, straight, and true, preferably spruce—and lay it aside for the ridge. No splicing is permitted in this pole. Next, select the purlins or sub-ridges which run parallel to the ridge in support of the roof, for which poles matching the ridge but somewhat smaller are needed. Then lay aside the small rafter poles picked with special care for straightness, smoothness, and uniformity—these should measure four inches at the butt for a small cabin, six inches for a large building.

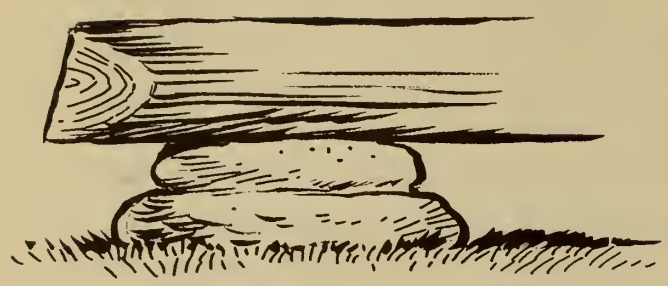
The wall logs should be dropped half on one side of the building and half on the other, or if a large building, on four sides, to eliminate the necessity of carrying later on. They should be laid on skids, and if to remain for seasoning, should be loosely stacked so as to permit air circulating.

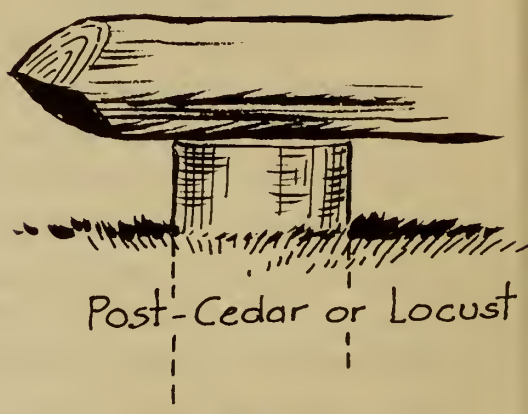
THE FOUNDATION

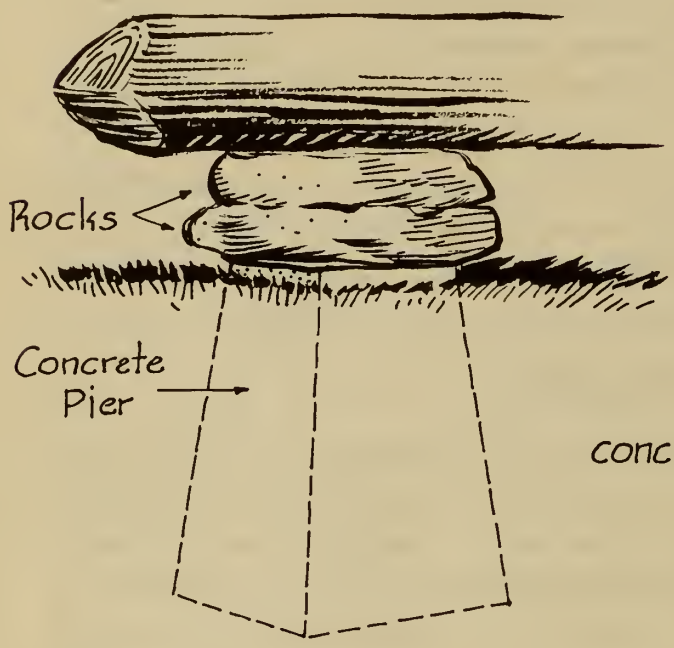
On solid ground, rock supports will be found adequate as a foundation for an average-sized cabin for warm-weather use. These should be placed at the corners and at intervals of five to ten feet. Use large, flat stones, with emphasis on the flatness, even if rounded bowlders have to be hammered to a flat surface with a stone hammer. Always use *two* rocks, laid one on top the other, for the reason that the moisture absorbed from the ground will keep the bottom rock damp but will not rise to the second rock if merely laid on and not attached. Level the rock supports with a string level.

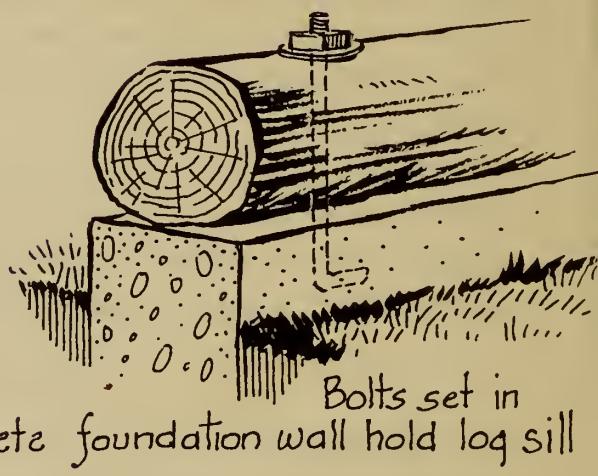
If the ground is soft, concrete piers may be needed, extending down to solid earth. On top of them, rocks should be placed, for rock belongs to the rustic picture and concrete does not. The piers should spread at the bottom.

If stones are not available, log posts may be found feasible for small buildings, for which only white cedar and locust, well-creosoted, are recommended. Use logs 12 inches in diameter, sink below the frost line, and rest if possible on a footing of small stones.







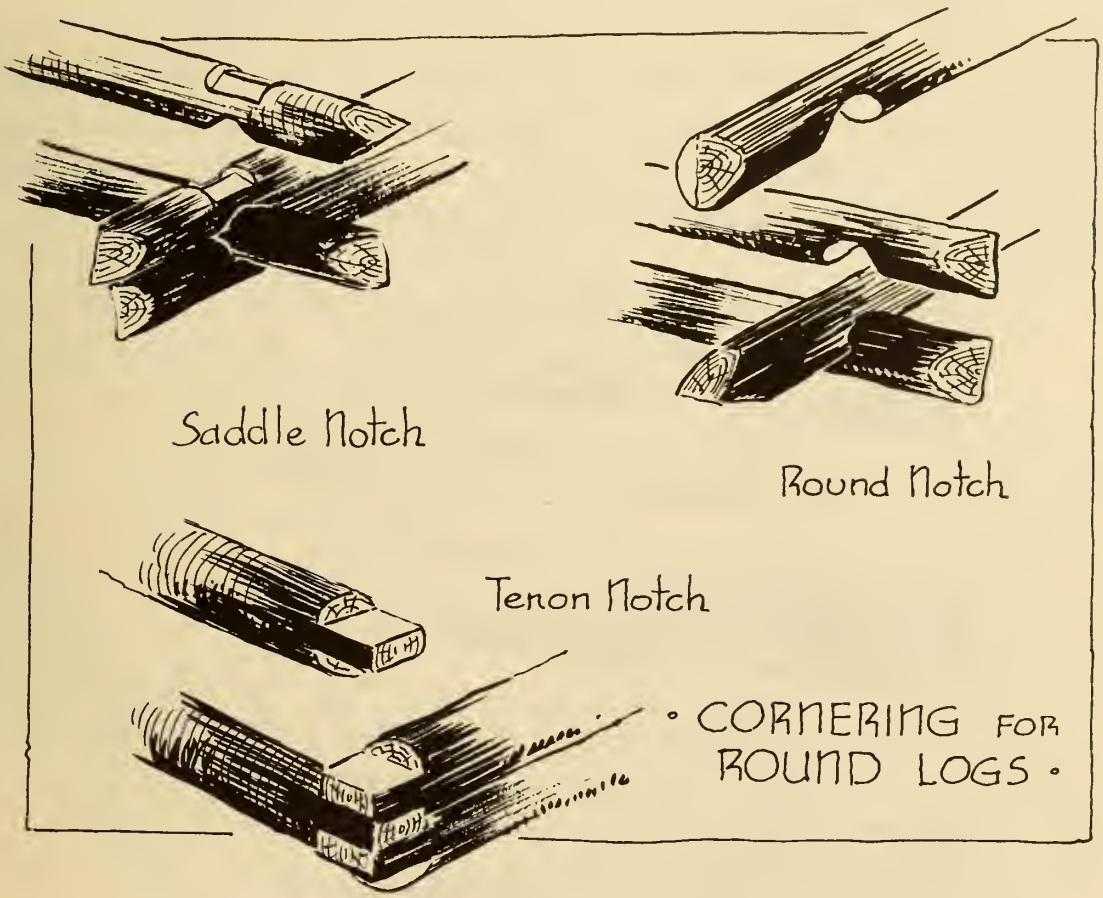


• FOUNDATIONS •

For year-around use, a foundation wall is indicated, and indeed is the most permanent and secure arrangement for any building. Dig a ditch along the wall line down to solid earth. Make the wall three inches wider than the diameter of the sill log, but never less than eight inches, and widen it at the bottom for footing. The width of the footing depends on the nature of the earth, but usually if it is eight inches wider than the wall it will be adequate. A number of small screened holes in each of the walls should be provided for ventilation to eliminate the dampness that hastens decay. Here again the foundation wall will better fit the rustic scene if it is faced with stone.

It is well to imbed heavy bolts in the walls at intervals of eight or ten feet, extending upward to the diameter of the sill log, by means of which the sill log can be bolted into place.

The foundation for the fireplace should be laid at the same time that the foundation is laid.

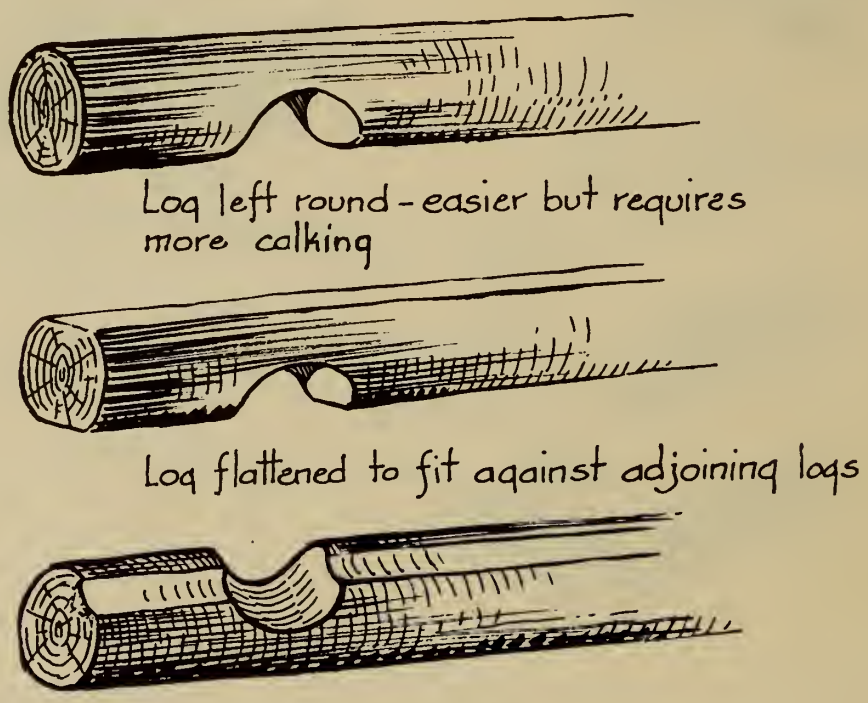


NOTCHING

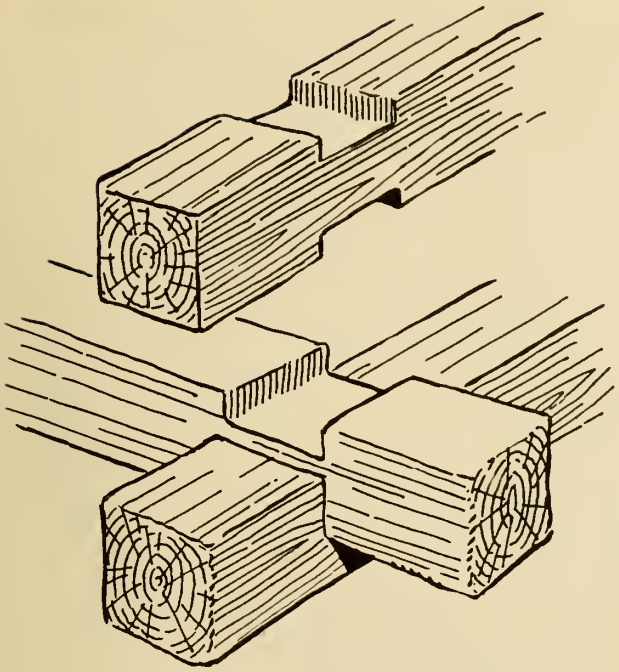
The methods are many of notching or intermembering the logs at the corners. In round timber, the three methods illustrated, all leading back to pioneer days, are most widely used. Of these, the round notch is to be preferred in that, since it is cut away on the bottom side only so as to fit over the lower log, there is little opportunity for water to enter to produce decay. The saddle notch is perhaps more widely used by woodsmen in rough and rapid construction, in that it can be more quickly done, with a saw to cut the

shoulders and a deftly handled ax to chop out the V's; but the logs thus fitted are aggravated by decay from the freely admitted moisture, and the corners lack the finished workmanship of the more carefully fitted round notch. The tenon type is less to be favored in round poles than in hewn timber, and robs the building of the charm of extended corners; it is better suited for quickly built sheds than for cabins.

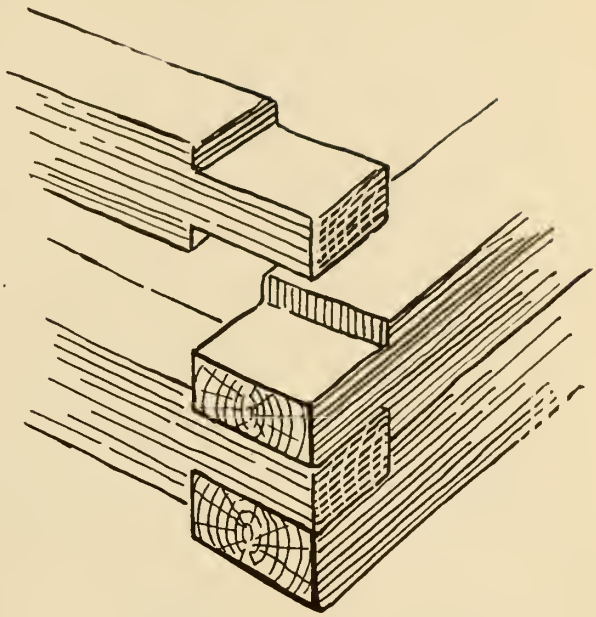
To make the round notch, place the pole in position, resting on the logs over which it is to be fitted. Mark the width of the notch, roll it over, and chop the notch out roughly with the ax, then smooth it up. It will have to be rolled into place many times before the proper fit will be achieved. The notch should be oiled and a layer of oakum added before the log is set.


Log left round - easier but requires more calking
Log flattened to fit against adjoining logs
Log cupped to fit over log below it

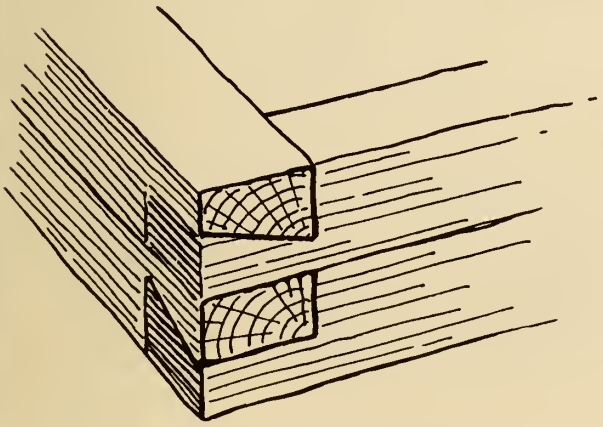
The walls will go up quickly if the logs are left round and merely notched so as to rest as close as possible to the log below, but the crack that is left must eventually be filled in with chinking, and this line of calking between the logs will be conspicuously visible. Many like the appearance of cabins with these white or gray calking lines between the logs, while others insist upon a solid log wall. If you are of the latter, the logs must be carefully and



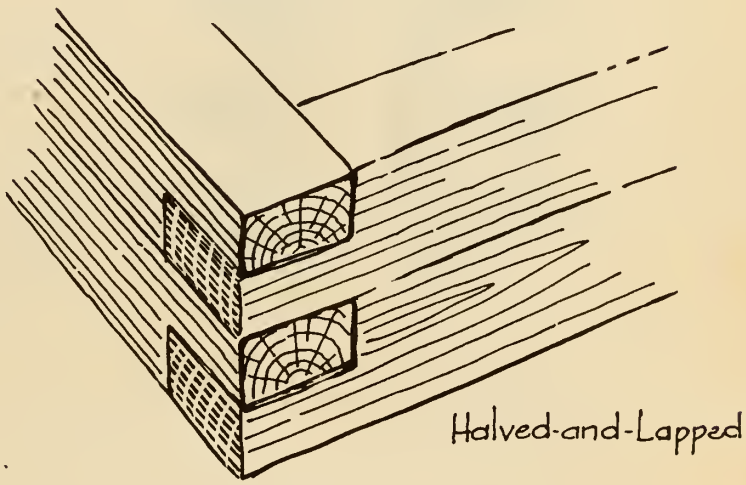
Square-Notched



Tenon-shaped



Mortised



Halved-and-Lapped

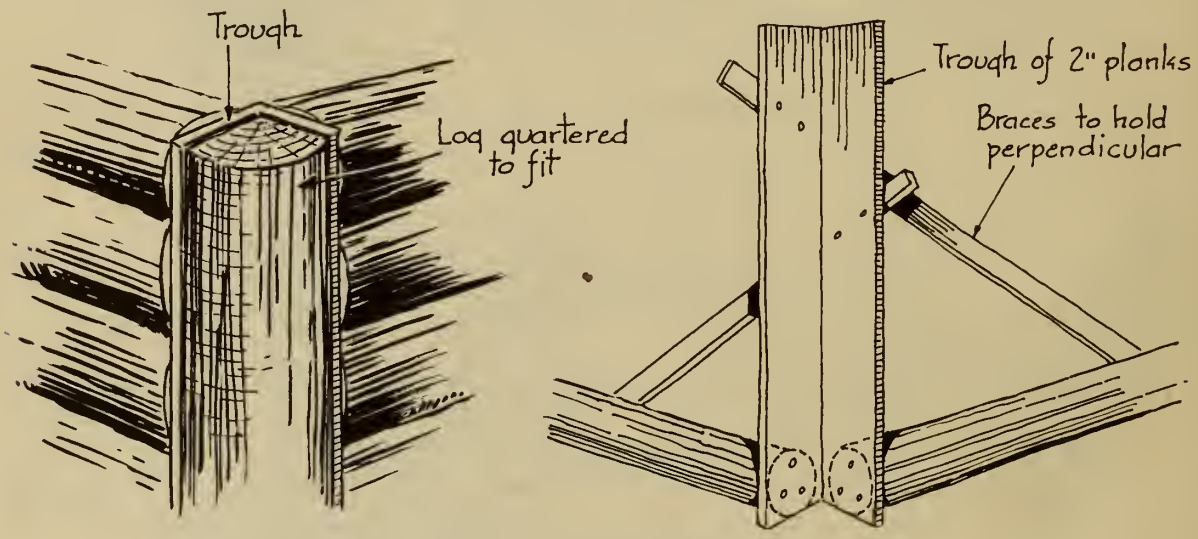
CORNERING • FOR • BLOCKHOUSE • OR • HEWN • LOGS

painstakingly fitted together throughout their entire length as you go along. The easiest method is to flatten the log slightly top and bottom so that it bears on the log beneath at all points throughout its length. A layer of oakum is then placed between as the log is finally placed. The best and most

workmanlike method, if you will give it the time, is to cut out or cup the lower side of the log throughout its entire length to fit tightly over the curved top of the log below, which when carefully done, and with a layer of oakum added, makes the tightest and most shipshape wall possible to construct. The grooves can be cut with a hand adz, or a two-inch gouge.

Logs are sometimes hewed on all four sides to make a blockhouse type of building, in which case the types of cornering shown in the sketch are used.

The Trough Corner.—Far and away the easier and speedier method of log construction is the trough corner which eliminates all notching worries. But by the same token it is the least attractive, the picturesque log extensions at the corners being replaced by the severe and stiff upright. When economy of time and labor is the controlling factor, however, it will be found the most expedient of all the methods.

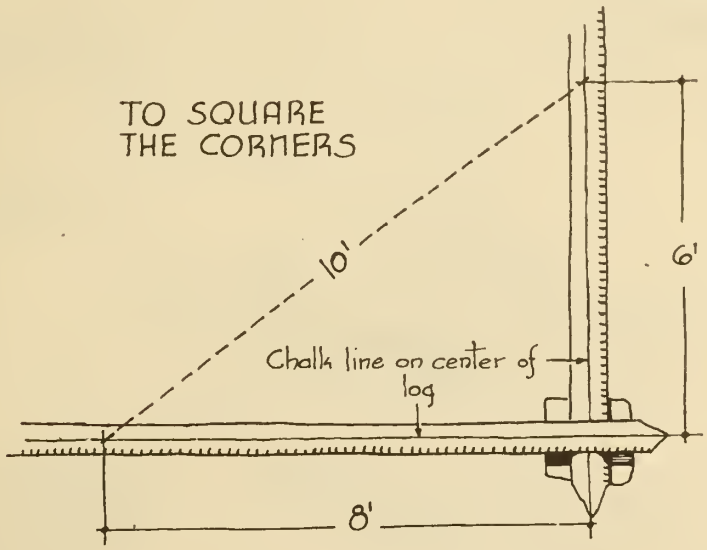


TROUGH CORNER
– quick and easy, but less picturesque

With the sill logs in place and their ends sawed as in the drawing, make the trough by nailing two-inch planks to the sill ends and bracing them temporarily as shown. Careful use of the level and plumb-line is necessary to insure that these trough boards are absolutely perpendicular before the braces are made secure.

The logs are then all cut to uniform length, placed one above the other, and spiked to the trough boards at the ends. Twelve-inch spikes are driven

through each log into the log beneath at intervals in the usual manner. When the walls have reached the desired height, a timber of the proper size is quartered and fitted in the trough as illustrated.



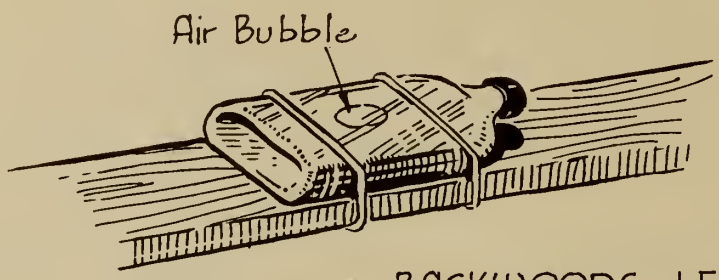
STAKING OUT THE CABIN

Clear up the ground and level it off roughly, then measure off carefully and drive the corner stakes as accurately as can be with a tape measure. Run a chalk-line around the entire outline of the wall, wrapping it securely around each of the stakes, and then check the angles with the 6-8-10 method shown in the diagram. Having marked the chalk-line six feet from the stake on one side, and eight feet on the other, the diagonal distance between the marks should be ten feet—if this is the case, it is a right angle. Check all corners thus and move the stakes as necessary. Finally, check by measuring diagonally from one corner of the cabin to the other—if the two diagonal measurements check, one can assume the layout is square.

SILLS AND FLOOR JOISTS

The largest and best of the wall logs should be selected for the sills or bottom logs of the wall. If these are to rest on a continuous wall foundation, they should be hewn to a flat surface on both the top and bottom sides,

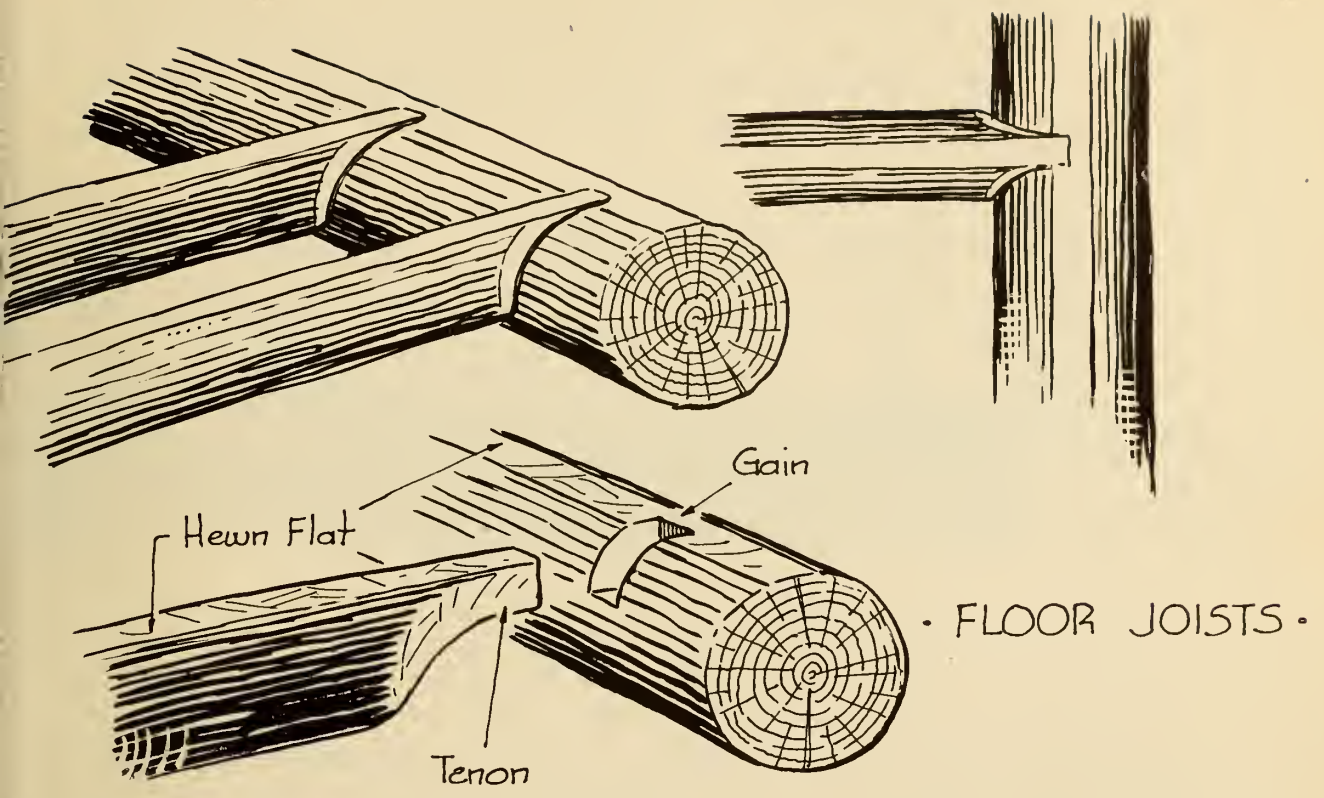
but if on piers or rock supports only, the bottoms need be flattened only at the point of contact with the supports. When the bottom crosswise logs are in place over the sills, and the corners carefully fitted, check the layout once more for squareness by running a chalk-line down the middle of each log, and pushing them as need be. The top sides of the sills should be levèled with exceeding care, for which two 20-foot boards nailed together will be found useful, with the level placed at its exact middle.



• BACKWOODS LEVEL •

The joists or supporting timbers for the floor should be of straight sound poles, 6 inches in diameter for a span up to 12 feet, 8 inches up to 16 feet, and 10 inches for 20 feet or more. They should be so placed as to direction as to have the shortest possible span, and spaced from two to three feet apart on center, depending on their size and strength. Perhaps the commonest method of installing the joists is to gain-and-tenon them into the sill log as illustrated in the sketch, and spiking them to prevent the building from spreading. The top sides are hewn flat and carefully leveled with their neighbors, to provide a level surface for the floor. In hewing this face it is customary to give it a crown at its middle point of about one inch for each 10 feet of length (1½ for 15 feet, 2 for 20 feet) to compensate for the sagging under the weight of the joists themselves and that of the floor. Joists for the second floor are built in the same way.

The chief shortcoming of the gain-and-tenon method of installing joists, aside from the labor required, is that so much timber is cut away in the process that the joists are weakened somewhat thereby. A method dating back to pioneer days that relieves this weakness is to rest the joists directly on the sills, allowing the ends to extend through the wall to the outside where their round and ax-cut ends add a picturesque touch. In this case the joists are flattened just enough at the point where they contact the sill



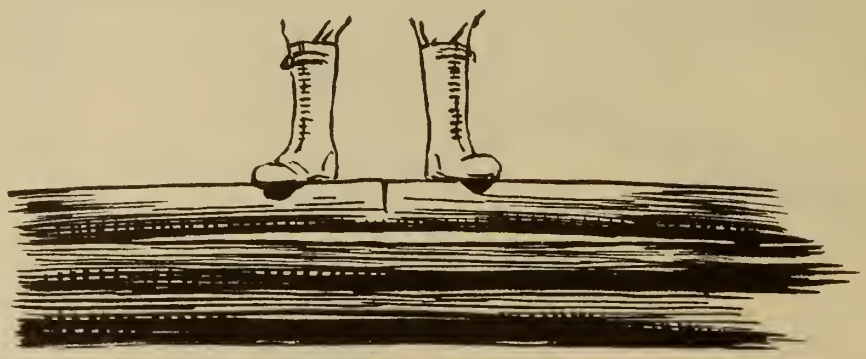
so that they will not roll, and are then securely spiked to the sill. The top sides are flattened as usual to receive the flooring. This raises the level of the flooring above the sill but that makes no difference. When the next wall log is placed above the sill it is cupped at each joist to fit over the joist. It is customary to so notch this log as to leave a wider space between it and the sill than will be the case between the succeeding logs, thus to relieve the necessity of too much cupping to fit over the joists. This wide space is filled with calking. If the projecting ends of the joists are not desired, they can be sawed off at the center point of the sill and spiked, and the log above cupped on its inner side only to cover the ends.

Wherever there is to be a partition going in the same direction as the joists, a heavy timber should be placed directly under it, even if it throws the spacing of the joists off.

Should it be necessary to leave a space or opening in the floor larger than the distance between the joists, which would require that the joists be cut, a crosspiece or header must be inserted, gain-and-tenoned or spiked to the

uncut joists, and the cut ones secured to the header.

If the foundation is a continuous wall, lumber may be used for the joists, in which case the joists rest directly on the foundation and are built as in any frame structure. For this, use 2-by-10- or 2-by-12-inch planks.



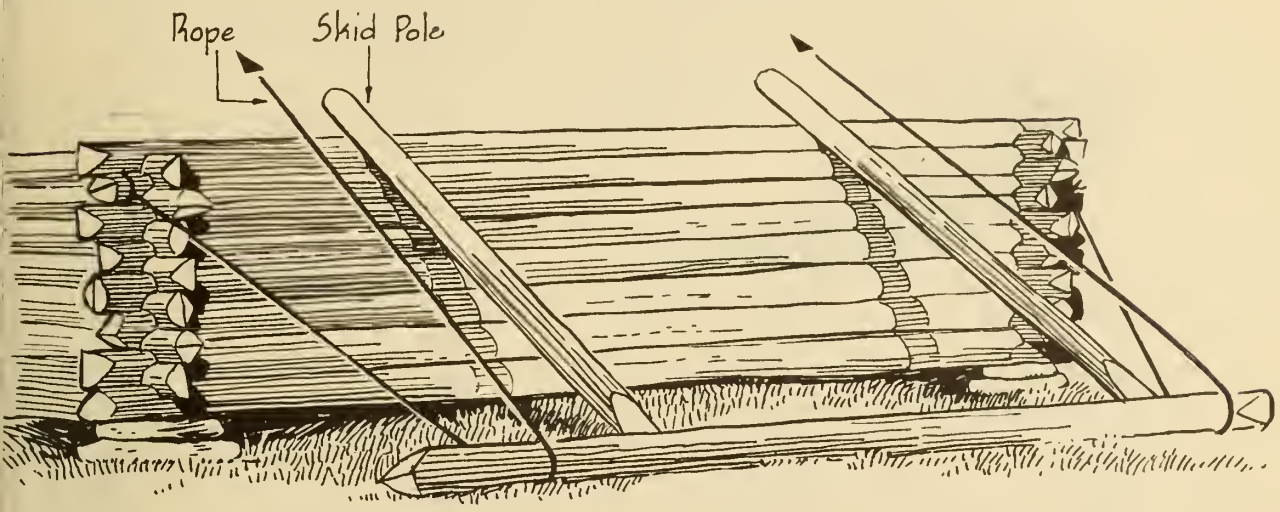
STRAIGHTENING A LOG

BUILDING THE WALLS

With the sills and floor joists in place, and the type of corner construction agreed upon, we are ready to raise the walls. Lift the logs to position, one at a time, and complete the fitting of each before proceeding. Use the plumb-line frequently, making sure each log is in line before spiking it down to the log below. The spiking is done with 12-inch log spikes, a modern and efficient substitute for the pegging of pioneer days, and is done at the corners and at intervals of every few feet. In those rare cases where the 12-inch spikes are found not to be long enough, a hole may be bored part way through the log and the spike driven with a driving punch. Alternate the butts and the ends of the logs so as to keep the walls level and, after placing every three or four logs, check the top for level.

It is to be hoped that the logs are perfectly straight and smooth, but if a slightly bowed log must be used, it can be straightened after it is corner-notched and set in place with the convex side upward, by sawing it part way through and then forcing it down as in the drawing and spiking it. If it cannot be pulled down by standing on it, a cant-hook will do the trick if its hook is sunk in the log and the end of its handle placed against the log below. The saw cut can be widened as need be to pull it down sufficiently.

If partitions are to be built into the cabin with horizontal logs, the logs must be fitted in place as the walls go up (see page 40).

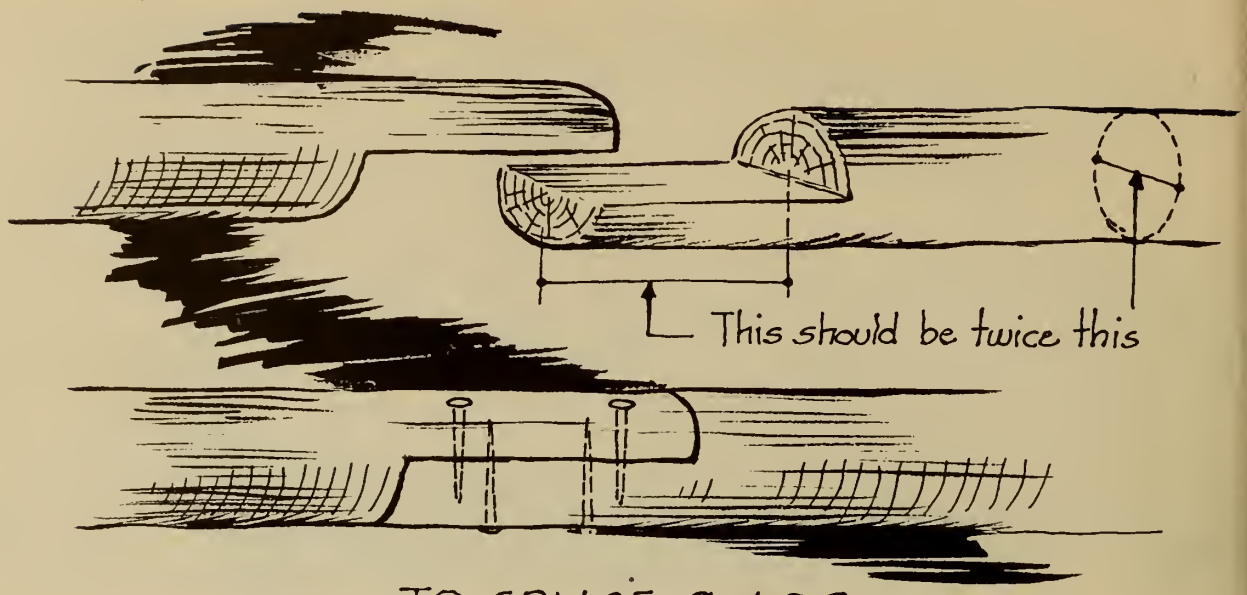


• HOISTING • LOGS • BY • PARBUCKLE •

Hoisting Logs.—As the walls reach their upper levels, hoisting the logs to position by hand becomes quite impossible, and requires the help of some device, for which the simple parbuckle will do as well as any. Lean two long skid poles from the ground against the top of the wall. Using two ropes, tie one at each end of the wall to the top log. Slip the ropes around the log on the ground and bring the ends back up to the top of the wall. Two men standing on the wall can then pull the log up the skid poles with surprising ease.

Splicing Logs.—If there is a shortage of long logs, two short pieces may be spliced together, a common practice entirely acceptable both for appearance and strength. None but the practiced eye will detect a well-executed splice. There need be no fear of a weakened wall resulting. Use the method illustrated on the next page, cutting back for a distance approximately twice that of the diameter of the log, and spike securely.

Voids.—The methods used in cutting voids (door and window openings) depends on how plentiful and cheap the logs are. Easiest is to do it in the extravagant method of the pioneer, by disregarding the openings completely, except perhaps to place the poor parts of the logs where the open-



• TO SPLICE A LOG •

ings will be, and building the cabin up solid and box-like to the top level of the openings. Using a crosscut saw, the top log is then sawed part way through, just far enough to insert the full width of the saw in the kerf. The log above is then fitted in position. The saw is then inserted in the kerf and the logs sawed out to make the void, using strips of lumber nailed to the walls as guides. If space exists between the logs, blocks or wedges should be inserted to hold them in place until the window frame is nailed to them.

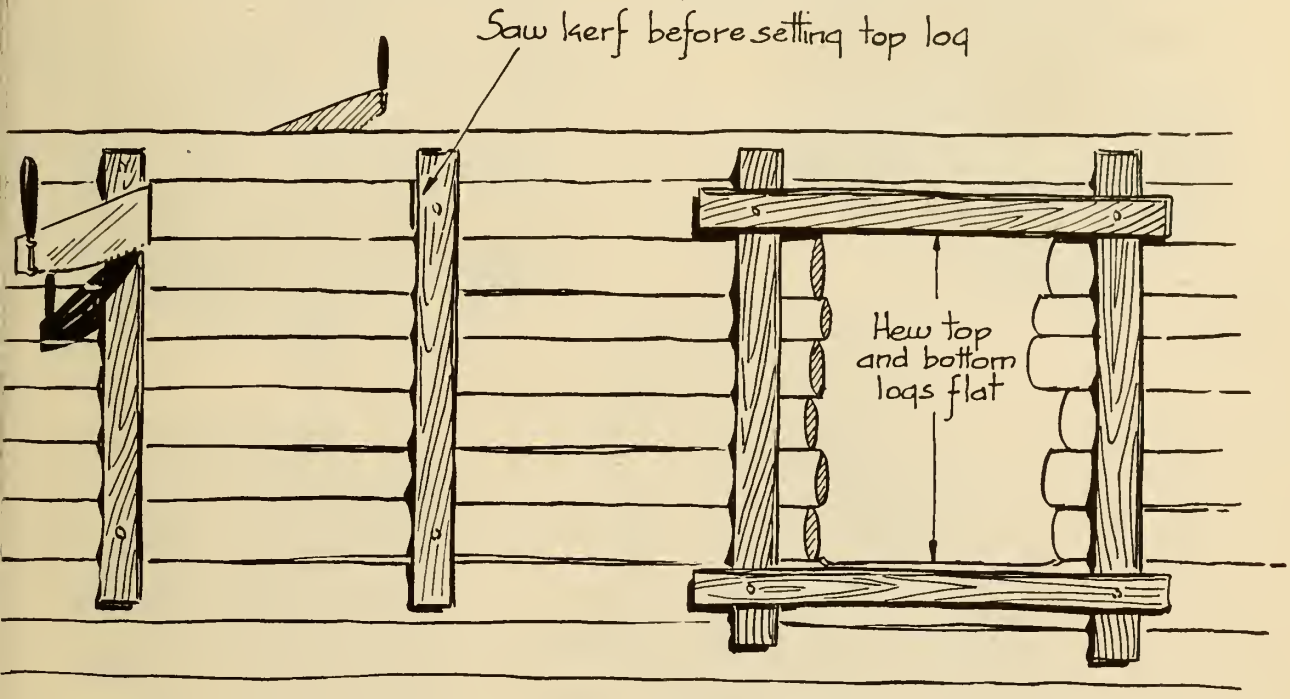
Nowadays, with timber scarce and valuable, the method is to use short logs extending into the void a short distance, then to nail a frame of boards over them as a guide for trimming off the projecting ends, as in the sketch. The top and bottom logs of the opening are hewn flat to fit the frame.

The frames for the doors and windows should be ready and waiting to be put in place, so as to be nailed securely to the ends of the logs, using at least two nails to each log in order to hold them in place. Use two-inch lumber for the frame. The window sills should have a downward slope of an inch or so, and should extend two inches out from the wall.

TRIMMING THE CORNERS

There is a distinct charm and appropriateness in ax-cut ends over those that are sawed. In the bucking of the logs to length, a saw would of course

be used. There is nothing inappropriate in these sawed ends, especially if they project to irregular lengths as in B, but added atmosphere will be achieved if all projecting ends, both at the corners and at the roof line, are ax-cut before installation, as in A. The straight lines of the vertical corners at D, and the tapered ones at C, smack of the man-made and precise, and do not fit the rustic setting as well as the comfortably irregular.

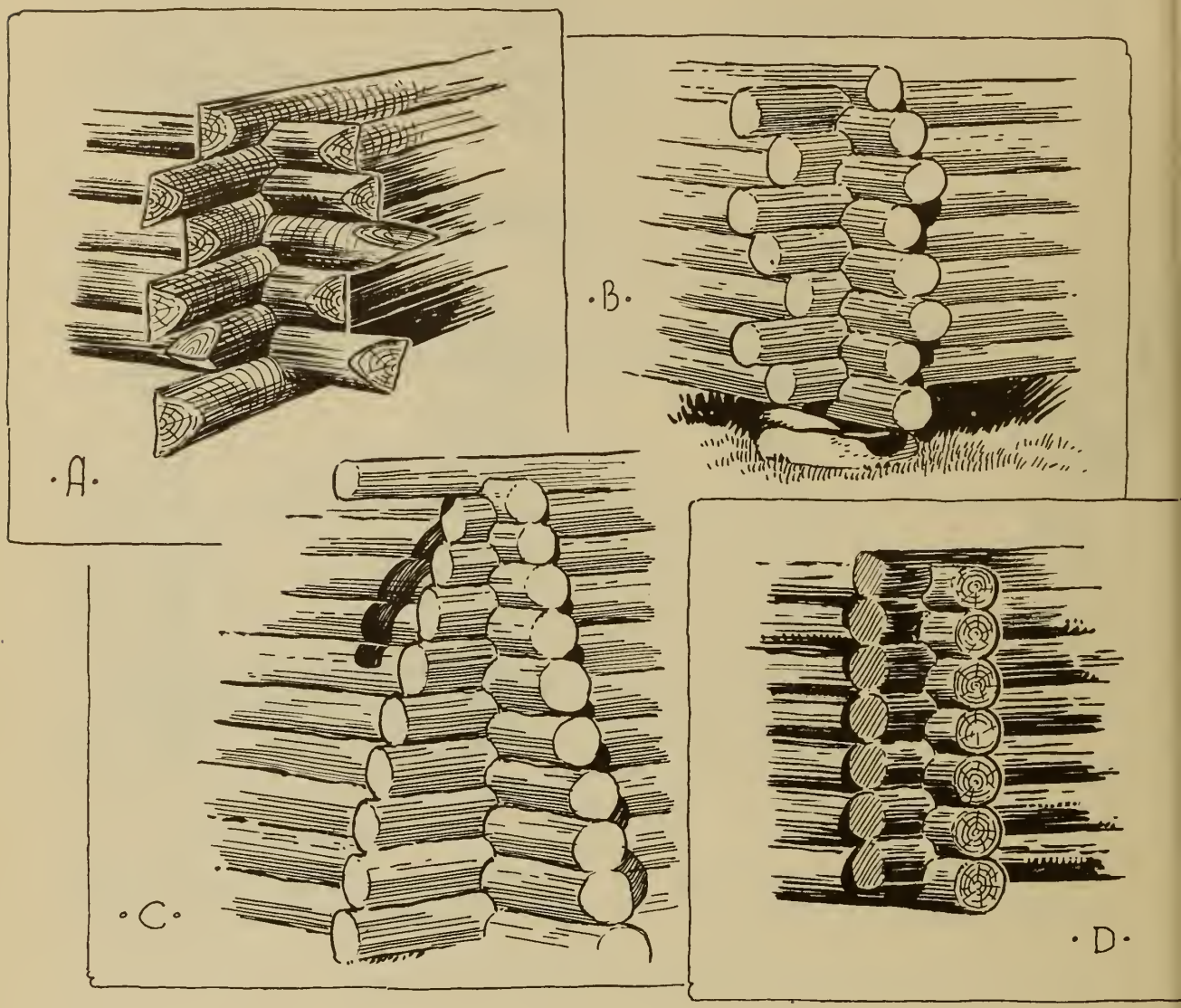

Saw kerf before setting top log
Hew top and bottom logs flat
Pioneer Method –
Make walls solid, then saw out windows and doors
Modern Method –
Use short logs, nail on guide frame and saw off log ends

• CUTTING THE VOIDS •

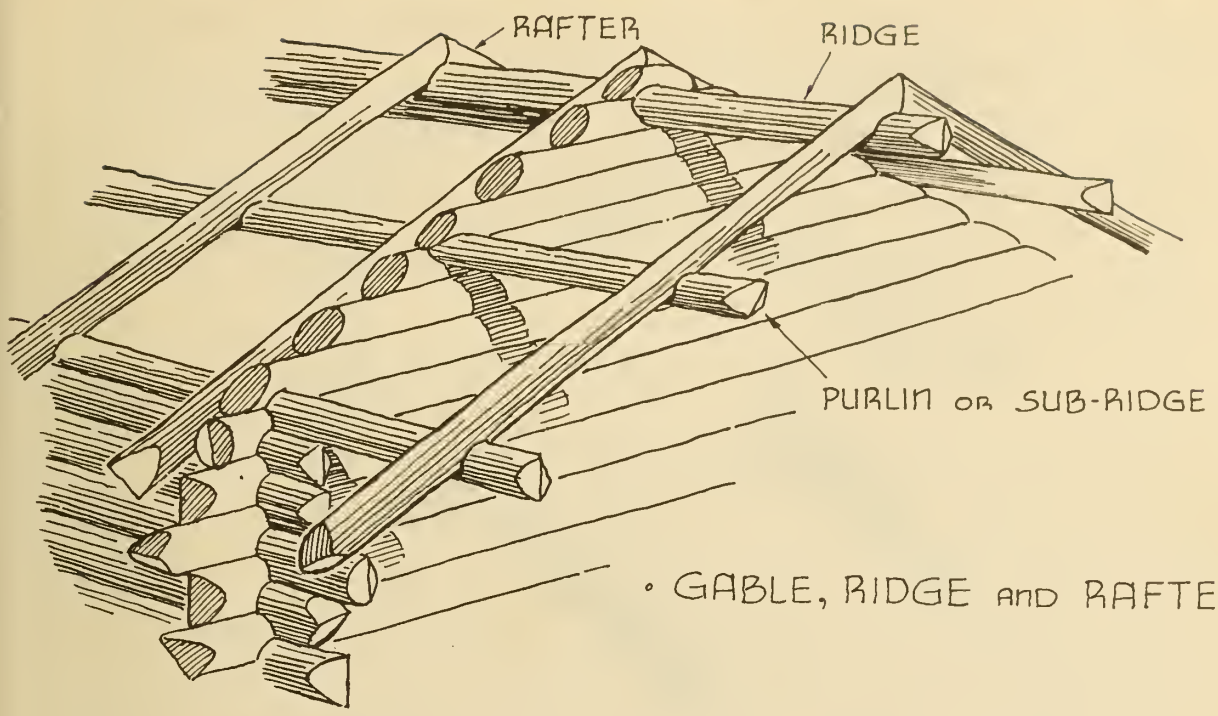
GABLES, RIDGE AND RAFTERS

Pitch of the Gable.—Your cabin plans will of course indicate the pitch of the roof, the width of the eaves, and the distance the ridge is to project from the walls. By pitch is meant the proportion between the horizontal run (from plate to ridge) and the height from the plate to the top of the ridge;

if the roof rises one foot for every four feet of run, it is said to have a fourth or quarter pitch.



On this matter, the tradition of the American Northwoods, stoutly defended by native builders there, favors steep-pitched roofs with often disproportionately high-pointed gables, the better to carry the burden of snow and ice and to permit it to slide off. Many are the cabins of modern design, however, low-pitched and of pleasing lines, that disprove the necessity for high pitch in the snow country. As stated earlier in this book, horizontal rather than vertical lines, and low-pitched roofs with wide eaves, are more



GABLE, RIDGE AND RAFTERS

harmonious in the wildwood setting, and lend themselves to better proportion in log structures. A sturdy and well-built roof can be counted upon to do its work at whatever pitch the balance and proportion of the structure requires.

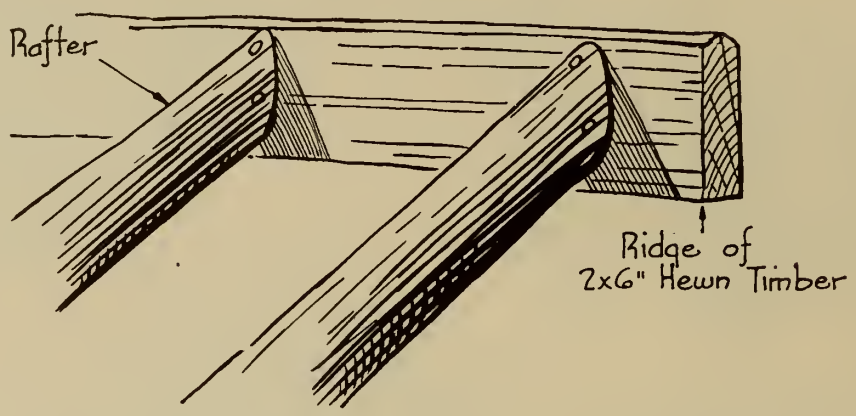
Build the gable ends by spiking the logs in place up to the peak where the ridge pole is to rest. Then strike a line for the slope of the roof, and hew the rough ends of the logs down to this line so as to produce an even surface for the roof boards.

Purlins and Ridge.—As will be seen in the drawing, the purlins, or subridges running parallel to the ridge, are fitted into the gable ends. This is best done by notching the log on which the purlin rests, then notching the log above to fit over it, filling the notches with a nest of oakum. The ends of the purlins, ax-cut, thus project with picturesque effect. Another method is to gain-and-tenon them into the gable end as described for setting joists. It is important that the purlins be set two to three inches below the surface of the roof to permit the rafters to rest on them without too much fitting.

The log at the peak of the gable which is to carry the ridge pole is hollowed out to the proper shape and the ridge rolled into position, well bedded in oakum. Finally a short length of log is shaped to fit over it to form the

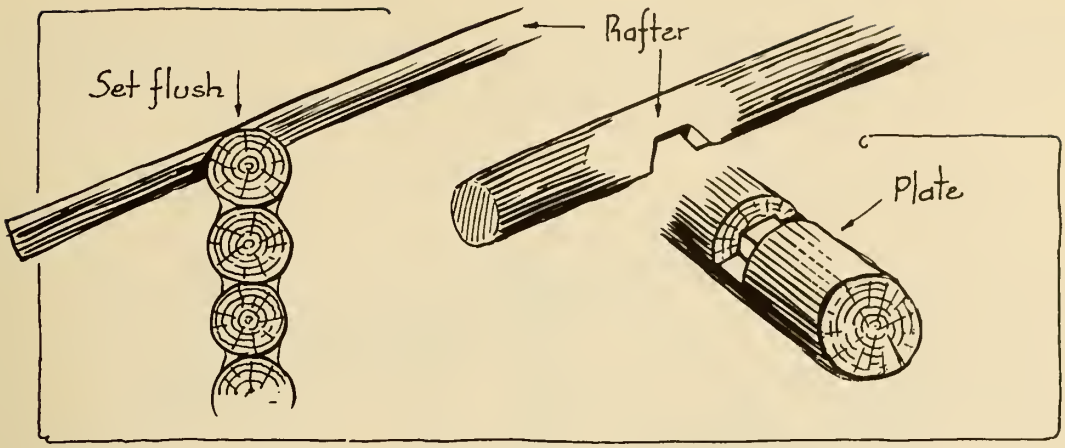
pinnacle of the gable as in the sketch. Like the purlins, the ridge must be low enough to permit the rafters to rest upon it.

Another type of ridge, favored by carpenters over the ridge pole of the log builders, is to hew or saw a 2-by-6 ridge board. While this permits cutting the rafters to length on the ground and facilitates quick and easy installation, it nevertheless lacks the charm of the projecting ridge pole at the peak of the gables.

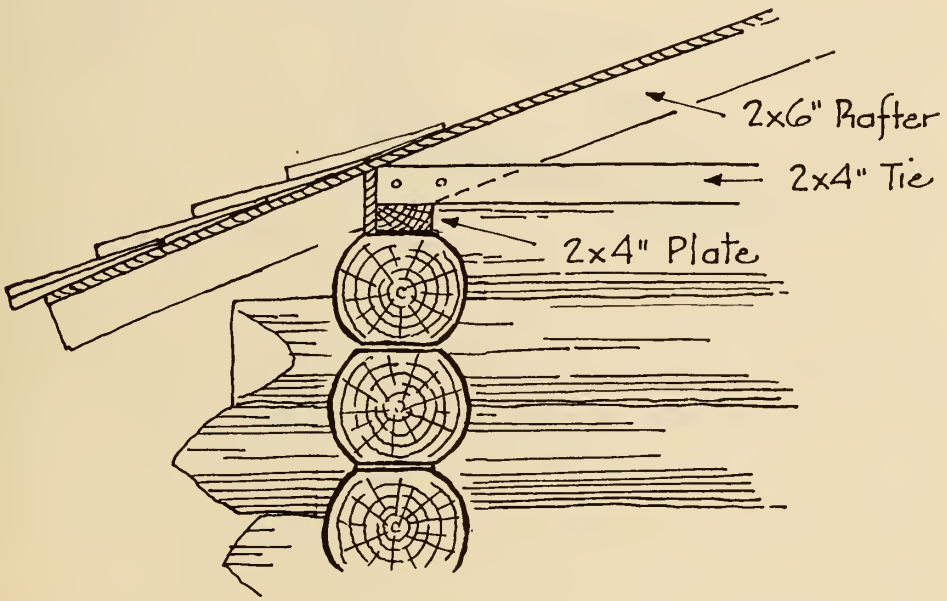


Rafters.—Nowhere else do clean smooth poles, matched in appearance and uniform in size, count for so much. Their size must be considered from the standpoint of balanced appearance as well as from that of adequate strength. If disproportionately small in relation to the purlins, even if adequate for strength, they give the lattice-work feeling of frailty that goes with "twig" architecture wherever it is seen. If too large, rather than giving a sense of security, they cause people to move beneath them with fear and trepidation lest the roof crash down from its own weight. Generally speaking, four-inch rafters are right for a small cabin and six-inch ones for a large structure.

Rafters should be set three feet on center at a maximum, and securely shouldered into the plate or top log of the side wall. This is done by a square notch as illustrated, with a channel cut deep into the plate so that the flat top of the rafter is flush with the plate; otherwise short lengths of poles would have to be fitted in between the rafters on the plate. The purlins and ridge are coped as necessary to receive them, and the rafters are spiked at each intersection. Their top sides are slightly flattened as in the case of the floor joists, to present a flat level surface for the roofing.



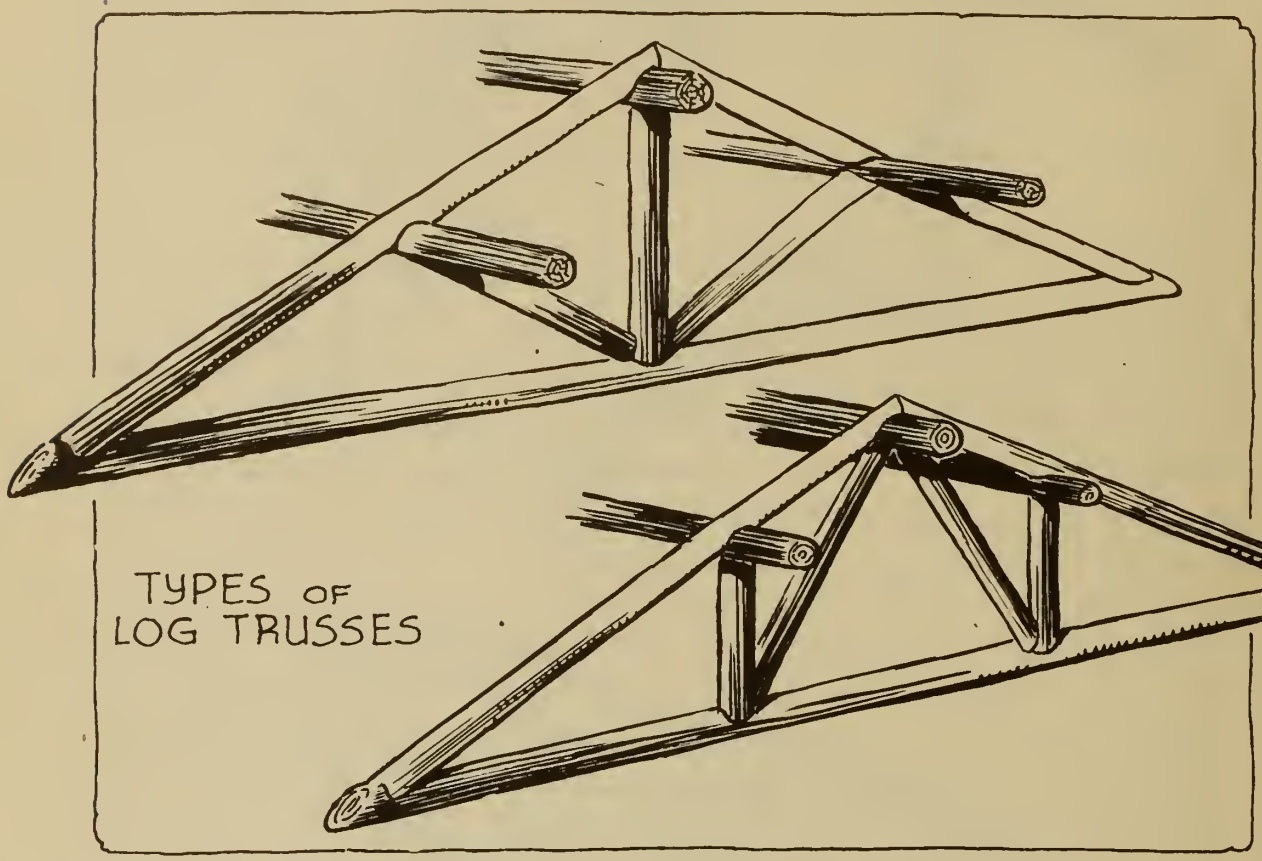
Occasionally one sees a combination log and lumber cottage, with the rafters of 2-by-6's as in the drawing. With this arrangement, the gables can be made of lumber, to save much work, or can be completed with logs as usual. Needless to say there is an incongruity about these architectural mixtures and, even though more level eaves may result, it is better to remain true to the rustic motive and use poles throughout.



EAVE · DETAIL

In small cabins rafters are sometimes eliminated in favor of a number of purlins parallel to the ridge, placed not farther than three feet apart. In this case the roofing boards would run up the roof.

Beams and Trusses.—If it is a one-story cabin in which there is no ceiling to shut off the beauty of the gabled roof with its rafters, crosswise tie-beams will be necessary to keep the walls from spreading. Three of these



will usually be sufficient, regardless of the size of the structure, the difference being in the size of the beams rather than the number. For a smallish cabin, six-inch poles will be sufficient, with proportionately larger ones for the large structures. These are gain-and-tenoned into the plate logs, as in the case of the floor joists, and securely spiked. If the cabin has a ceiling, the upper joists will of course eliminate the need of beams.

Large lodges of this open type with a ridge span of over 40 feet will require upright supports from the beam to the ridge, and with knee-supports over to the purlins. The drawings show possible arrangements for such trusses. In a building of about 45 by 65 feet, one set of these supports on the middle beam should be sufficient, while larger buildings might require

them on each beam. Needless to say, the beams carrying these loads must be exceedingly sturdy, comparable to the ridge itself, and the need for strength and rigidity recommends the use of spruce.

ROOFS

Roofing lumber is applied to a log building as to any other type of structure, nailed to the rafters and gable ends. Wherever the lumber contacts the log walls, as at the plates and gable ends, a layer of oakum should be placed.

It is to be hoped that the cabin plans call for a roof of such sturdiness and ruggedness in appearance as to match the massiveness of the log walls. Above heavy walls, a thin roof appears doubly flimsy and robs the structure of harmony, as if to indicate that the massive walls were unnecessary. Were it not for this factor, roll roofing and composite shingles would be quite acceptable, and may still be suitable on small cabins. Generally speaking, wood shingles or shakes are more fitting, and in cabins of size, should be as thick as obtainable, up to an inch if possible, and each fifth row should be doubled for the needed rugged aspect. Of the wooden shingles, those of cedar and white pine are best, with spruce, fir, and hemlock as second choices.

Most appropriate, and picturesque beyond all others, are shakes hand-rived of oak, cedar or pine. These are made either 24 or 36 inches long, and are applied in shingle fashion about half to the weather. The method of making them is described in another book.[1]

After the roofing lumber is in place and before the covering is applied, the ridge should be covered with painted sheet metal, extending 12 inches either side, to prevent leakage. The same is recommended at each valley in the roof. The roof covering is then placed over the metal.

Whatever the type of roofing, a saddle board or ridge cap must be placed over the ridge. This may be a trough made of two boards nailed at the proper angle, extending six inches on each side, or a log hewn out to a V to fit over the ridge.

For all-year use the warmth of the cabin will be greatly increased if a layer of building paper is placed over the roof boards and beneath the roofing.

[1] Bernard S. Mason, *The Book for Junior Woodsmen*, page 78. New York: A. S. Barnes and Company, 1945.

WINDOWS

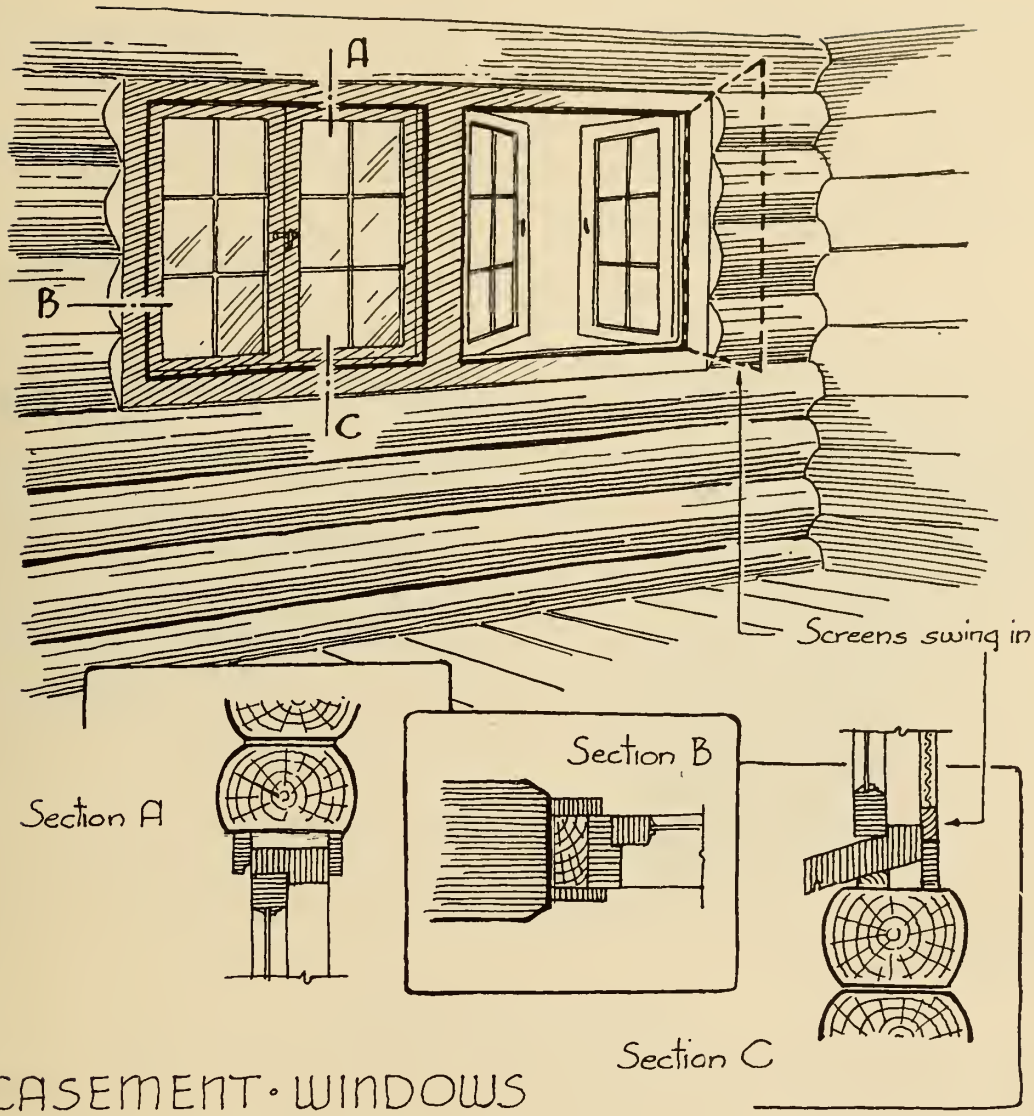
It is a characteristic of log buildings that they are dark on the inside, owing in part to the tendency of the logs to absorb light as compared to the plastered and brightly covered walls of home dwellings, but more to the fact that the difficulty of cutting openings in the walls has led to putting in too few of them. If you would have a bright, cheerful cottage, be generous with windows.

The only practical type for a log building is the casement window, easy of installation, fool-proof in operation, delightful in appearance, and appropriate in effect. Windows that slide up and down or sidewise are difficult to install in a log wall and offer no advantages over the swinging type. By using a series of casement windows in a row, unusually large window effects can be provided. Whether the casement windows swing outward or inward is a matter of choice, there being advantages and disadvantages in each direction. If the window swings outward, it will keep out rain, but it is exposed to the weather on both sides, is easily caught by the wind, and the screens, which are a must in the woods, would have to be placed inside so as to require opening each time one wants to reach the window. If they swing in, they will admit rain, but are protected from the rain themselves, and permit outside screening. By and large, the outward swing will be found more satisfactory. The windows should always be purchased ready-made.

DOORS

In keeping with the oft-mentioned harmony of every item with the rustic motive, handmade doors of planking are indicated in preference to milled ones of the panel type which would cry aloud of their inappropriateness. Every log builder of the timber country will have ideas on the matter and the know-how of their construction.

There are two types of plank doors in common use in the log-cabin country. The first is made of two layers of planking, one vertical and the other horizontal, with a layer of building paper placed between lest the driving rains trickle through. The second is made of three layers of lumber, the middle one horizontal, and both outer ones vertical, for which wide, matched boards are used. Quite typically, a strip is nailed to the edge of the door to



cover the three-layer construction and to give the appearance of solid planking. Preference should always be given to knotty lumber which unfailingly enhances the rustic attractiveness. The most appropriate effect will result if the boards are doweled together in the manner of the pegged doors of pioneer days. A time-saving expedient often resorted to in imitation of these is to countersink screws in ¾-inch holes and cap the screw with a dowel imbedded in glue, thus to cover it. When well executed these belie their true nature except on close inspection, but like all fakes, are better avoided in favor of the frank use of the most appropriate materials avail-

able, left uncamouflaged. There is nothing inappropriate in exposed screw heads in rustic settings, and if they are of the lag type, squareheaded and large, they enhance the attractiveness with a true ancient flavor. Blacksmith-forged strap hinges complete the picture.

Inside doors can be made of a single layer of matched lumber held by crosswise battens, top and bottom.

FLOORS

The matter of flooring depends pretty much on what you want, and what you can afford. Hardwood flooring of the type that would go into your city home may give way to tongue-and-grooved softwood if taste and need so dictate. Soft lumber will wear rapidly and will be poor economy in the end. Of the cheaper flooring, "hard pine" will prove most satisfactory. The best width for flooring is 2½ inches. Often boards of varying widths are employed in search of a handmade effect. It is customary to blindnail narrow flooring, but wide widths can well allow the nailheads to show. Added information on the matter of flooring will be found in the discussion of floors for frame cottages on page 70.

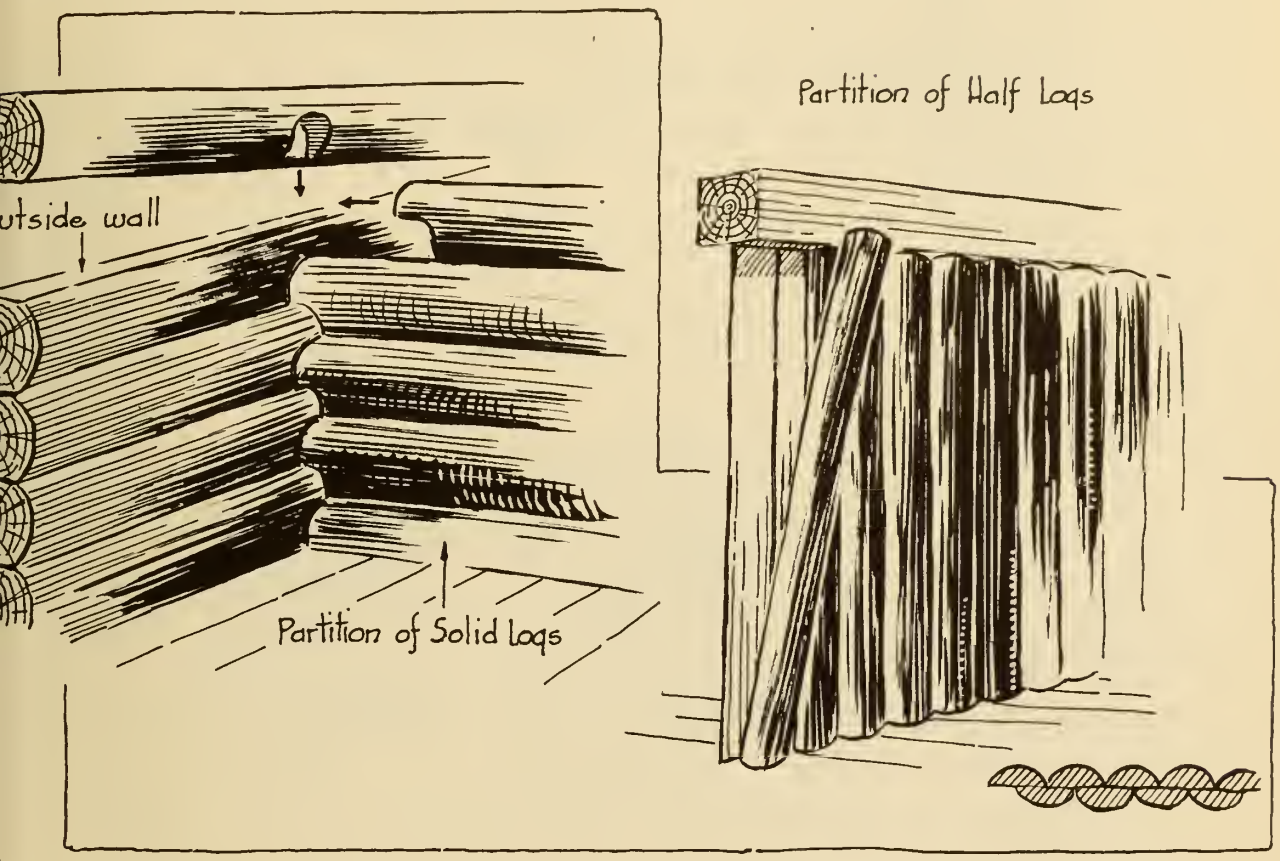
If the cabin is for year-round use, a double flooring with a layer of building paper or tar paper between is well worth the cost in the added warmth the insulation provides. The underflooring can be of cheaper, but of dressed and uniform lumber.

INSIDE PARTITIONS

The most substantial and appropriate partition is made of logs placed horizontally in the same manner as the cabin walls. Such partitions must be built in as the walls go up. The end of the partition log is rounded out on its bottom half so as to fit over the wall log on which it is to rest, as clearly indicated in the sketch; a pocket is then cut in the wall log above it to close over the end.

Another type of partition reasonably acceptable if carefully done, and more economical of time and timber, employs slabs or half-logs made of small poles sawed lengthwise. These may be placed vertically in a double layer, flat sides together, the timbers in one layer so placed as to cover the joints between the timbers in the opposite layer; this arrangement requires

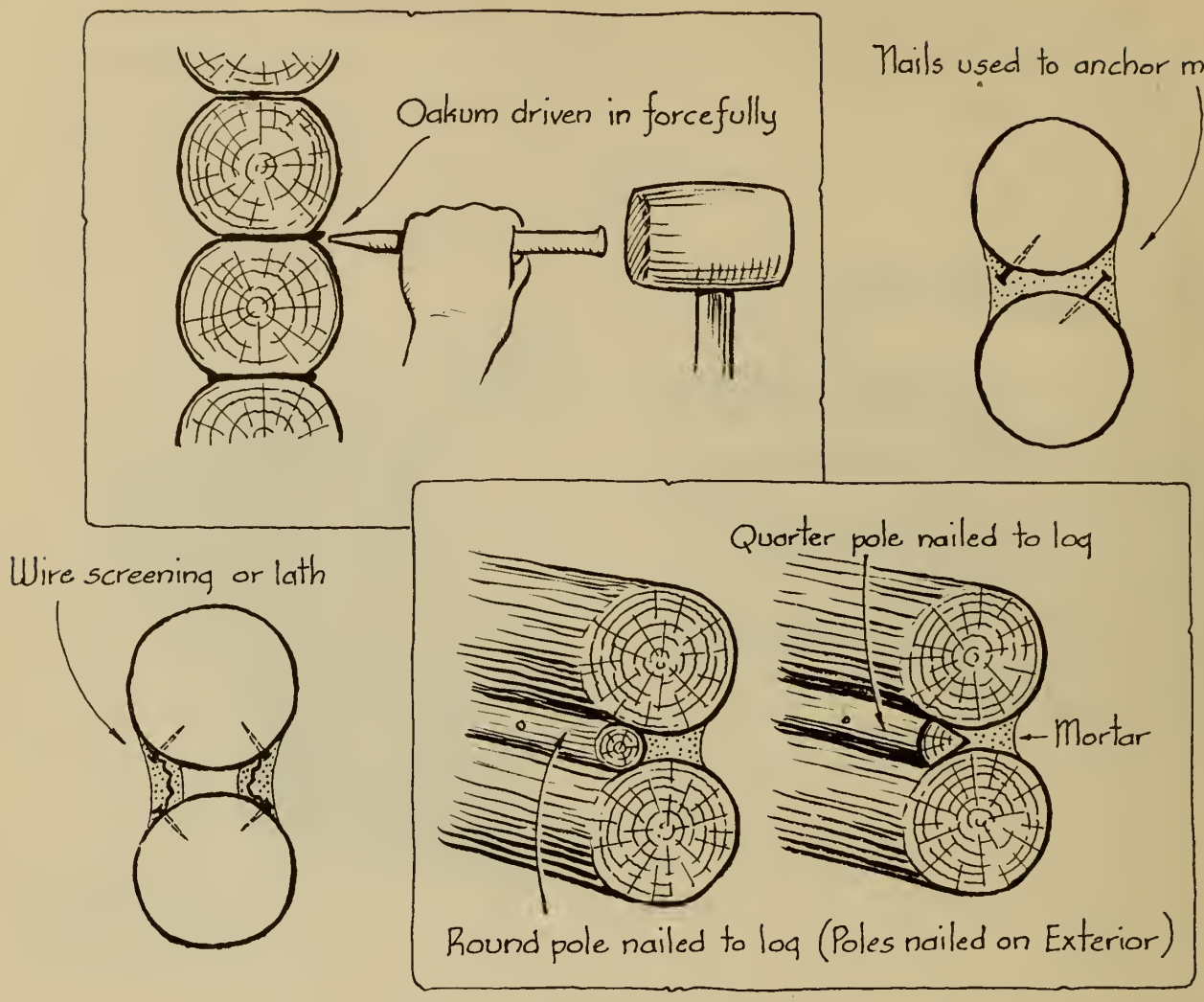
a ceiling or beam above to which it can be attached. Or the slabs may be placed horizontally, again in a double layer, so as to conform to the horizontal wall logs.



If finished timber must be used, knotty pine gives a beautiful effect and blends with logs more appropriately than clear lumber. Battens are much used in rustic settings in preference to matched lumber, using wide unmatched boards, placed either vertically or horizontally as the situation indicates, with battens or narrow strips two inches wide and one inch thick nailed over the joints.

CHINKING AND CALKING

The amount of calking that will be necessary depends on the care, or lack of it, with which the logs are laid up. If the logs are cupped so as to fit snugly over the log below, a layer of oakum placed on the lower log before the upper is put in place will suffice. If a space is left, it will have to be


Oakum driven in forcefully
Nails used to anchor mort
Wire screening or lath
Quarter pole nailed to log
Mortar
Round pole nailed to log (Poles nailed on Exterior)

• CHINKING •

filled in one way or another. If the latter is the case, and the logs are not thoroughly seasoned, calking should be delayed as long as possible for the logs will shrink and make re-calking necessary the next year. If immediate calking is essential, the job should be regarded as a temporary one.

Of the calking materials, oakum is far and away the best, but cotton waste or sphagnum moss are usable. The material is forced into the cracks with a spud or wedge-shaped piece of wood driven with a mallet. If the cracks are wide, small poles split and quartered may be needed to fill them after the plastering is completed. Or, to use a modern device, wire screening may be

tacked in the crack before plastering, or as a substitute, nails may be driven in the crack to part of their length, leaving the heads protruding to give the plaster something to grip. In any event use plenty of oakum before plastering.

Wood-fiber plaster, lime mortar, cement mortar, or clay may be used, of which wood-fiber plaster is to be preferred for staying power. If mud is used, in the manner of the pioneer, it should be mixed with water to a consistency of putty.

OILING AND STAINING

One has three choices for the finish of his cabin: He can leave it as it is and let the weather do its worst, he can oil it, or he can color it with stain or paint.

The weather works on logs with surprising speed, and in the eyes of most people, with devastating results. The delightful cream or buff tones of the bright shining logs will have turned grayish and dull with the passing of a single year, and in three or four years, sooner or later depending on the climate, will have become dark gray and decrepit in aspect, with the unkempt tone of a dilapidated, unpainted farmer's barn. Even those who wish an ancient-looking pioneer cabin could scarcely accept this as having charm.

Those who would preserve the appearance of the logs much as it is when the cabin is completed will do well to confine themselves to oil. The logs will be softened and mellowed thereby, the creams turned to yellows and oranges, and the buffs to tans, and while the general effect of the fresh-peeled logs will be retained, the cabin will take on an increased richness and glow. Boiled linseed oil is used, applied in two or three coats for a thorough job, with ample time intervening to permit the oil to dry and soak in. One of course has the dual purpose of appearance and preservation in oiling the logs. The latter will be enhanced if turpentine is mixed with the heated oil and the mixture applied while still warm. For its first coat, use a mixture of about ¼ turpentine, for the second, about ⅛ turpentine, and for the last, pure oil. The turpentine is added after the oil is heated for it is inflammable.

If you prefer the logs colored, you can paint them if you wish, but God forbid! Paint obliterates completely the texture and grain and the native quality of the logs, thus to rob them not only of their charm, but of the very

aspect that blends them into the natural environment as an integral part of it. When native materials are used they should be allowed to show through for what they are. If one must use paint, he should not use logs. The proper medium is a thin stain which will color the logs yet leave them with the appearance of logs.

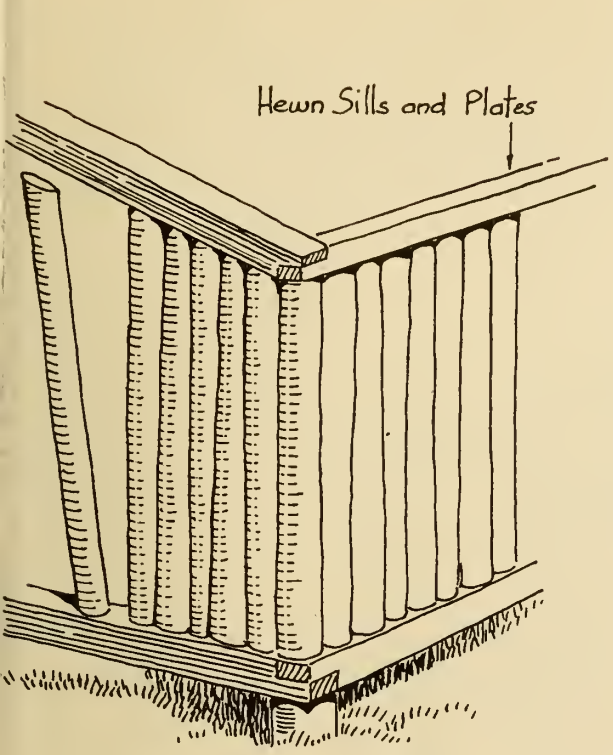
There are several commercial stains available, or you can make your own by mixing the pigment, either dry or in paste form, into the linseed oil and turpentine mixture described above until the desired shade is achieved. In either case, whether commercial or mixed on the spot, the stain should be tried out on the butts trimmed off from the logs used in the cabin, and this experimentation continued until the just-right shade is found.

As to color, there is, after all, but little choice except browns, if one would keep in mind the all-important factor of blending his cabin with the natural setting. Green comes to mind immediately, but it is risky at best and, more often than not, disappointing, owing to the difficulty of finding the right shade for the particular setting, and the tendency of green to fade and change color with the passing of time. Some shades of light gray, particularly the driftwood tones, will blend, and may sometimes be used in limited amounts with nice effect.

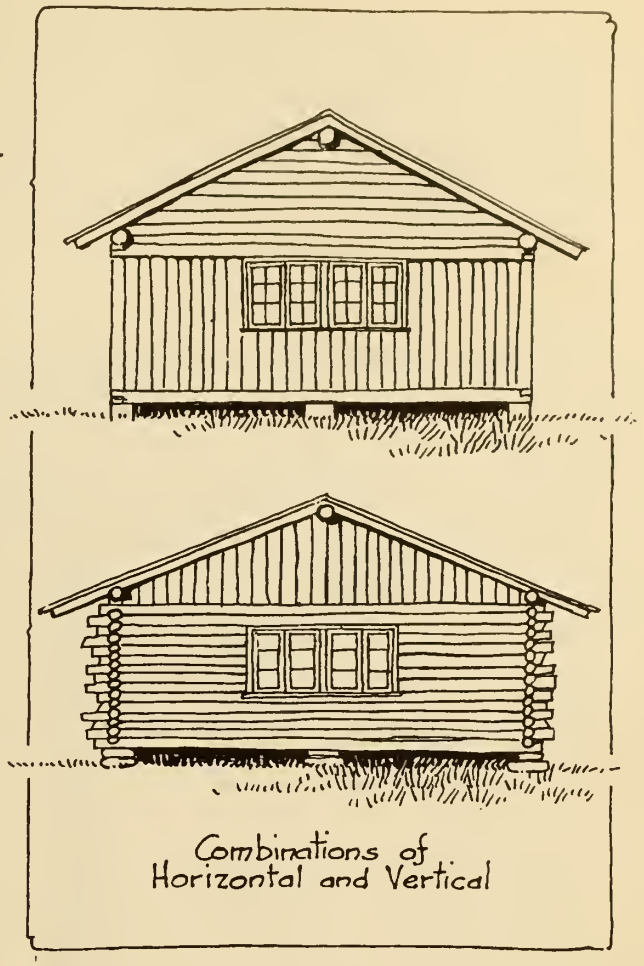
As has been stated earlier, the log walls of the interior tend to absorb light as compared to wall-papered and tinted walls, a fact which argues that they should be kept in as light a tone as possible. A more cheerful cabin will result if they are merely treated with pure oil, or with perhaps just a touch of brown added for richness. The trim of the windows and the doors can suit your taste, but if the brown scheme is to be retained throughout, a stain a trifle darker than the walls is pleasing. The floors would then be in a still darker shade.

STOCKADE AND POLE CABINS

Thus far this chapter has been devoted to cabins in which the logs are placed horizontally. In the stockade type of construction, the logs are placed on end. This is a widely prevalent style of log architecture, particularly to be sought when none but small logs are available, making what is commonly called a pole cabin. Poles from four to six inches are usable here, avoiding smaller ones to escape any indication of twig architecture. The



STOCKADE TYPE OF CONSTRUCTION

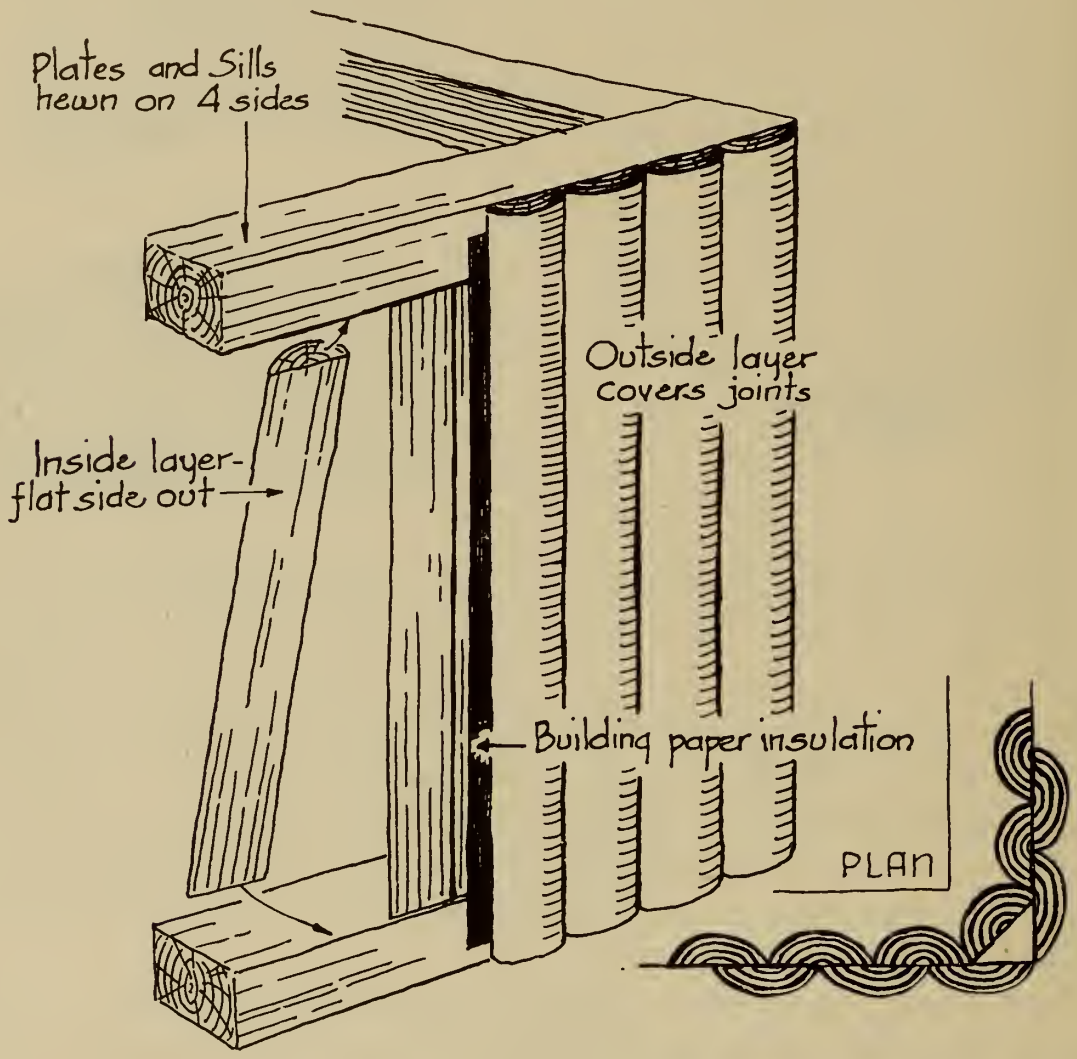


stockade style, however, is by no means limited to these toothpicks, for full-sized logs are often placed vertically with delightful effect.

One of the appeals of the stockade cabins is the greater ease with which they are built as compared to those in which the logs are placed horizontally, because the logs, being shorter, are easier to handle, and the time-consuming task of notching is eliminated.

Of particular importance is a good foundation, preferably of the wall type, to which the four-squared sill logs can be securely bolted. The plate logs are also hewn square, and both sills and plates are halved and lapped at the corners as in the sketch. The corner uprights are placed first and the plate logs set on top of them, after which the wall uprights are cut to length and spiked in place. A tight building requires that the logs be flattened on the sides so as to match snugly, and chinked in the usual fashion.

This vertical placement of logs is often combined with horizontal placement to achieve interesting and often striking architectural variations, particularly in the large log lodges which offer opportunities for deployment of style. The variation is usually confined to the gables, a cabin with stockade walls using horizontal gables, and one with horizontal walls employing vertical gables.



HALF-LOG CONSTRUCTION

HALF-LOG OR SLAB STOCKADES

A type of stockade construction that spreads a scanty log supply over a greater surface is the half-log or slab style, which gives an outward and inward appearance identical to that of a round-pole cabin. It is much the easier of construction. Logs five to six inches in diameter are suitable, which should be sawed in half lengthwise, a service any country sawmill will render. It is important that both the sills and the plates be hewn square for otherwise the building could not be made tight. The outer layer of slabs is first nailed in place, extending from the bottom of the sill to the top of the plate, the edges being first trimmed smooth to match. The inner slabs are then cut to fit between the sill and the plate, and are so placed as to cover the joints of the outer layer. For a tight structure, building paper or tar paper should be placed between the two layers where it will be completely covered from view and will eliminate the need for calking. Sheds and out-buildings which do not need to be tight may be made by placing the slabs an inch or two apart, thus allowing the flat surface of the slabs in the opposite layer to show through.

CHAPTER IV

FRAME CONSTRUCTION

In most semi-wildwood environments the frame cottage can be so handled as to blend into the background of nature with reasonable satisfaction and harmony. Lumber is not foreign, even if man-made as to form; it can easily become foreign in aspect, however; or it can appear as native as the trees around it—rather than of material, it becomes a matter of architectural appropriateness. Whereas a cabin of logs will appear as native in the woods as if it grew there if left alone and if the builder keeps himself in the background, the frame cabin needs a more deliberate effort of the builder toward tying it into its setting.

There is no mandate that defines architectural appropriateness in all the varying situations of terrain and vegetation, but the principles oft-stated in these pages apply to the frame as to the log cottage: simplicity, avoidance of severity arising from overexactness and straightness of lines, lack of frills and manifestations of forced cleverness, and absence of all that oversophistication implies. And let it not be forgotten that in most settings the greatest hope rests in keeping the building low, of one story or a story-and-a-half, with the emphasis on horizontal rather than vertical lines. All of which is here stated once more at the risk of being repetitious, for the reason that, in contrast with the log cabin's tradition of simplicity, the frame house's varied history of adornment may lead us far afield from the limitations of pioneer craftsmanship which the out-country house needs to achieve harmony with its setting and with the past.

The structural problems involved in building a frame cottage will be well understood by all who are familiar with simple frame construction wherever it is found. The know-how will be as near at hand as the nearest good carpenter, and therefore there would be no point in a detailed description here. The point at which the camp cottage takes on uniqueness, as compared to any other simple frame building, is in an exterior finish slanted to fit the blue-sky background.

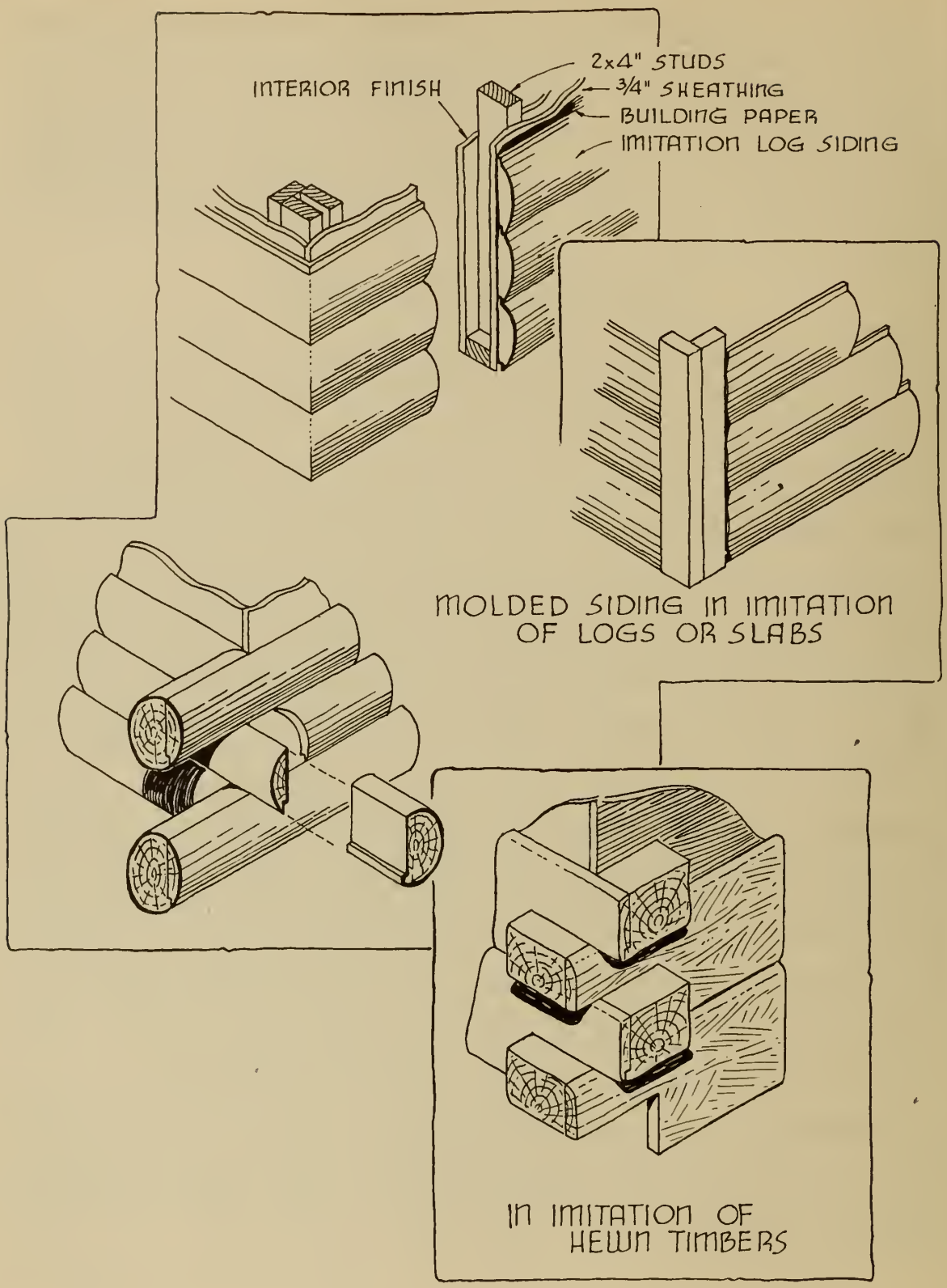
THE IMITATION LOG COTTAGE

Wherever one goes in the cheaper resort country, he sees it—the cottage with siding milled to represent logs. It fools nobody, not even the greenest tenderfoot. One glance reveals the fake—as far as one can see it, it reeks with fake. No logs that ever grew looked like this—such smoothness of finish, such uniformity of board upon board, such severely straight edges—such as these are made by man, not nature!

These curved boards might be reasonably attractive, even if less so than other siding, were it not for the fact that they purport to be something that they are not. Their obvious hypocrisy is not conducive to charm. If one cannot have a log cabin, he will do better to content himself with a frame cottage with legitimate siding that frankly and honestly stands forth just for what it is.

For those who see no incongruity in the use of these imitations, there are two types—the rounded siding that is designed to look like logs or half-logs, and the "hewn" type that purports to be hand-hewn timber such as is used in block houses. To camouflage the straight corners which label the walls immediately as of being of boards, there are rounded or full-log end-pieces which attach to the ends of the siding to simulate the projecting log ends. If random widths of siding are used, the walls will be relieved of their monotonous uniformity, and will more accurately simulate logs.

Many companies market these log imitations. The siding can be bought and nailed up as in the case of any other type of siding, or the cabin can be purchased in pre-milled form so that all that is necessary is assemble the sections. The accompanying drawing shows the types and the methods of installation.


2x4" STUDS
INTERIOR FINISH
3/4" SHEATHING
BUILDING PAPER
IMITATION LOG SIDING
MOLDED SIDING IN IMITATION OF LOGS OR SLABS
IN IMITATION OF HEWN TIMBERS

STANDARD SIDING

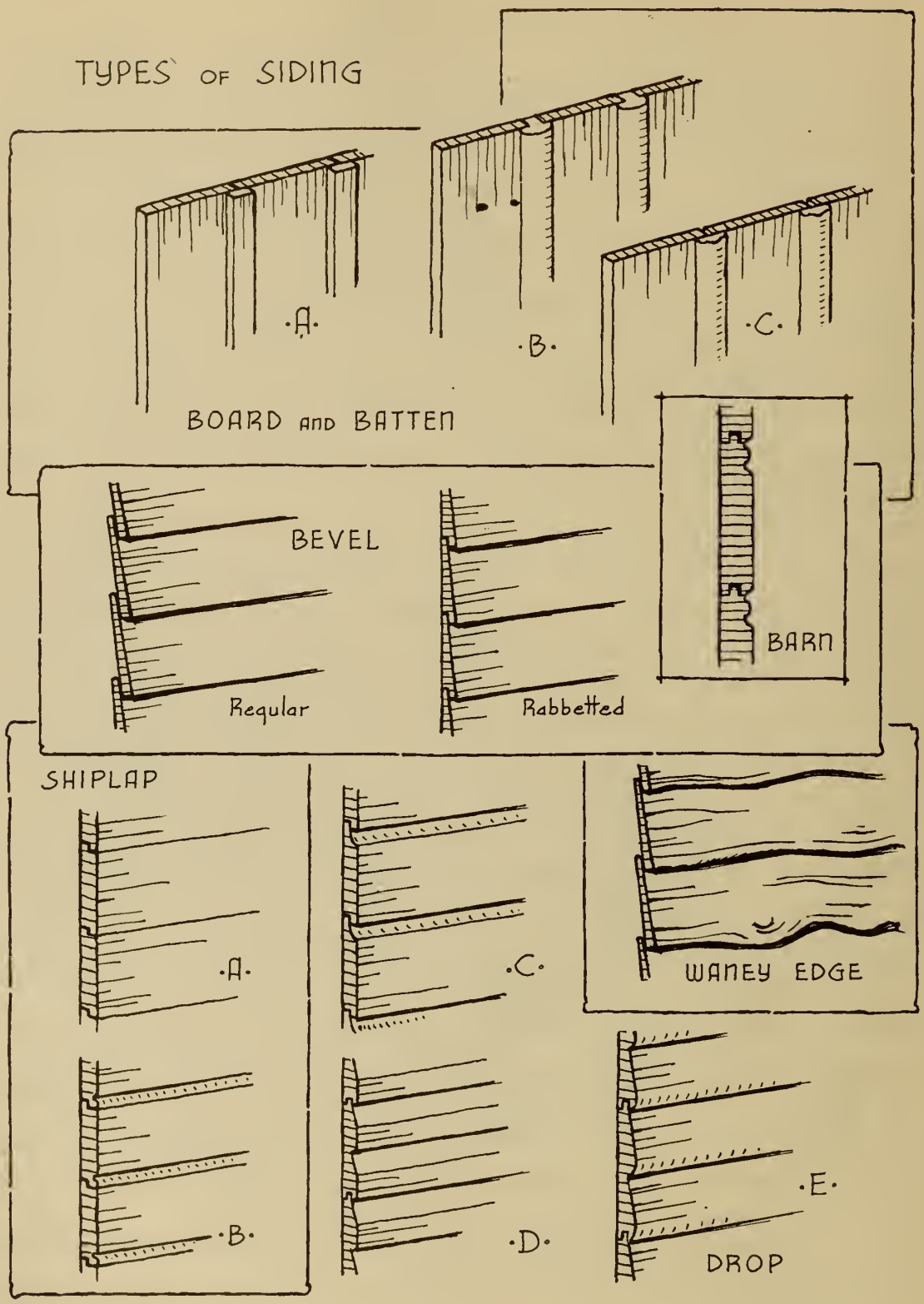
Assuming that the lines of the contemplated structure are architecturally appropriate for an out-country cottage, the next major consideration is the type of siding to be used, for more than anything else the siding will determine the exterior view. The types of siding are many and varied.

Waney-edged Siding.—Next to logs for woodsy, earthy appropriateness, comes the waney-edged boards. These are boards sawed from logs with the irregular edges of the logs themselves left untrimmed. When nailed up as siding, the irregular, wavery lines gives a handmade, craft quality to the structure that has the very essence of pioneer handwork within it. Such siding is even used on occasion in sophisticated city houses with striking effect, but it is on the woodland dwelling that it is most at home and lends its greatest charm. There it is in its native land.

Waney-edged boards may be purchased from lumberyards where they are marketed commercially, even if rarely, or they can be sawed from logs by a local sawmill. In the latter case, small logs selected for irregular and knotty surfaces should be used, for if smooth and even the sought-after irregularity of the boards will not be forthcoming. The boards are nailed up in the usual manner of bevel siding, which means that the upper edge is covered by the board above. These waney-edged boards usually have one straight or sawed edge, which, of course, would be placed up so it cannot be seen.

Board-and-Batten Siding.—One of the most appropriate and popular and, withal, easily installed and economical exteriors for a cottage involves the use of simple board-and-batten siding. Such siding has the knack of harmonizing with any setting, and seems particularly at home in natural surroundings. In this arrangement, wide boards are installed, over which narrow strips called *battens* are placed to cover the joints or cracks. One of the chief appeals of board-and-batten siding for a cottage to be used in the warm months only is that, when applied vertically, the walls will be reasonably tight without the necessity of sheathing them with rough lumber before the boards are applied, thus saving considerable time and expense. This is not true with the types of siding that are applied horizontally.

In the simple board-and-batten method, the battens consist merely of a straight strip of lumber nailed over the joints as shown at A. These strips are


TYPES OF SIDING
·A·
·B·
·C·
BOARD AND BATTEN
BEVEL
Regular
Rabbetted
BARN
SHIPLAP
·A·
·B·
·C·
·D·
WANEY EDGE
·E·
DROP

usually one inch by two inches in size, but as the width of the boards may vary, so may the size of the battens. There are also specially milled battens available that fit between the boards as in B and C. These are sometimes molded for fancy effect, an example of which is seen in C.

While the boards and battens are most frequently applied vertically, they may be installed either vertically or horizontally to suit one's taste, or as the general lines and layout of the cottage indicate. Often the two methods of placement are combined in the same cottage to provide interesting variations in effect. For example, the boards may be placed vertically on the main walls of the cabin, and horizontally in the gables, or vice versa. Boards and battens are also effectively combined with other types of construction, such as in a log cabin where they fill the gables, or in a cottage with stone walls up to the eaves, and board-and-batten above.

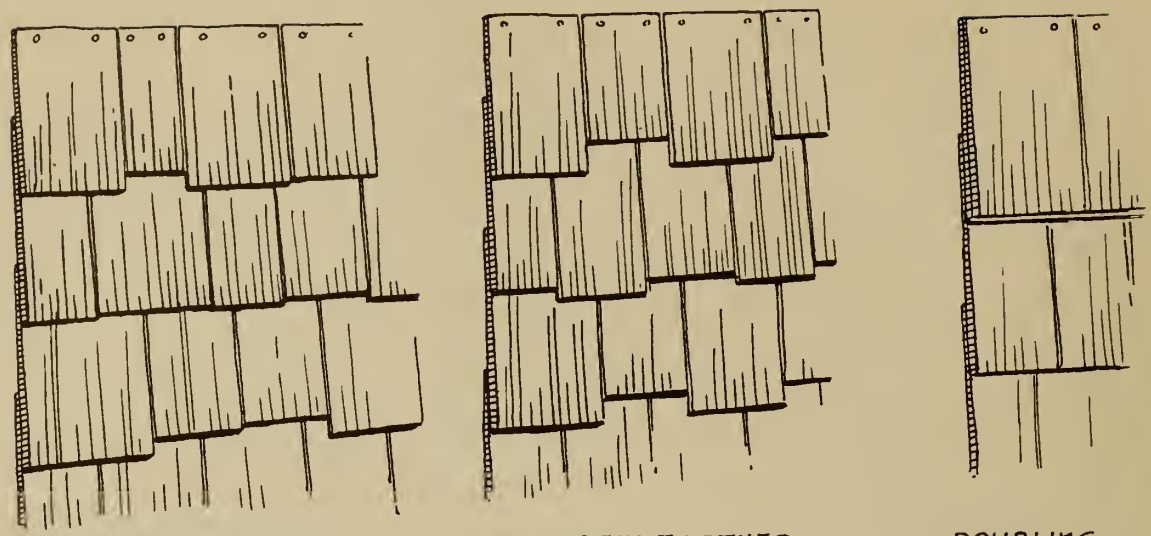
Bevel Siding.—Traditionally the most common for frame houses, bevel siding is a familiar sight to all. A variation of the regular type is the rabbited type shown in the sketch.

Shiplap Siding.—Flush siding is achieved by using boards with a shiplap joint as shown in A. Molded shiplap of many types is available, of which those shown at B and C are typical, which gives a line of demarcation at the joint to relieve the uniformity of the otherwise flush wall. The types shown at D and E are designed to resemble fancy bevel siding in appearance.

Combinations of Siding.—Any of the types of siding here described may be used in combination with any of the other types, to give a cottage greater character than is usually achieved by using only one type. The plate on page 55 sets forth a few of the possible combinations.

SHAKE AND SHINGLE EXTERIORS

The supreme appropriateness of hand-rived shakes, whether on roof or sides, needs no argument, nor does the fact that their use as siding squares with the pioneer tradition. To cover the cabin with shakes is to use one of the good and ancient devices of the woods. As indicated elsewhere in these pages, they are rived (split) from oak, cedar or pine, either 24 or 36 inches long, and are placed about half to the weather respectively. In these days of machine-made shingles, men who know the art of riving boards are not so numerous any more, but in most outlying districts in the wooded areas there



• SHINGLES USED AS SIDING •

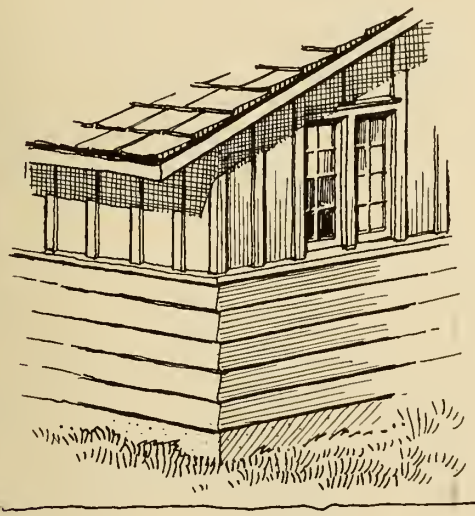
can still be found some whose hands were once calloused by froe and mall, who can turn out shakes with surprising speed. For those who would tackle the task themselves, to experience a joy found in few other outdoor crafts, the know-how is described in another book.[1]

The shakes are applied in the usual manner of nailing on shingles, and being handmade and of random width, none of the devices for applying shingles to give irregular effect, such as irregular or saw-tooth bottom lines, are needed. When one uses true pioneer materials, he achieves a true pioneer picture without the devices needed when materials are faked. A rugged, rustic cottage with a hand of pioneer craftsmanship upon it will result if the shakes are installed in regular fashion, but for added ruggedness especially appropriate in large buildings, every fifth row of shakes may be placed in a double layer, thus to relieve the uniformity of extra-large surfaces.

Although a far cry from shakes as a siding for a rustic cabin, modern shingles have their place if necessity or convenience demands. Here the doubling of every fifth layer is particularly effective. The placing of the shingles with

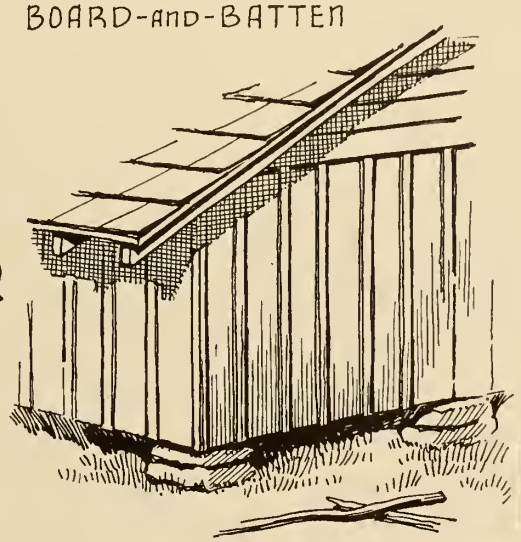
[1] Bernard S. Mason, *The Book for Junior Woodsmen*, page 78. New York: A. S. Barnes and Company, 1945.

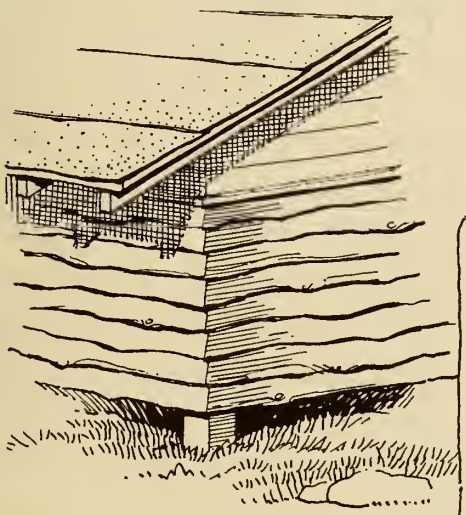
BOARD-AND-BATTEN AND DROP SIDING



SIDING USED IN COMBINATIONS

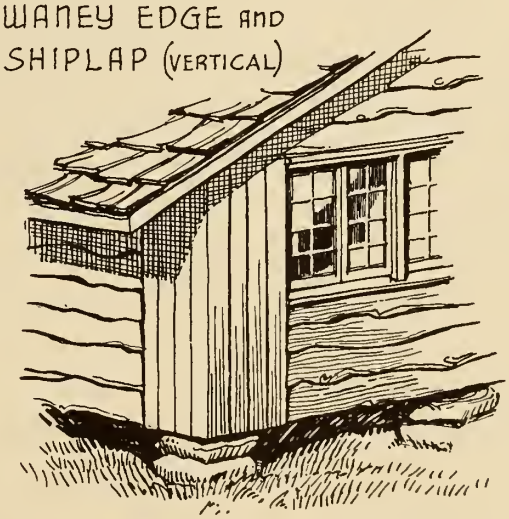
BEVEL SIDING AND BOARD-AND-BATTEN





SHIPLAP (FLUSH) AND WANEY EDGE

WANEY EDGE AND SHIPLAP (VERTICAL)



irregular bottom edges or in saw-tooth pattern avoids the straight lines which always smack of the man-made and usually conflict with the natural.

FOUNDATION

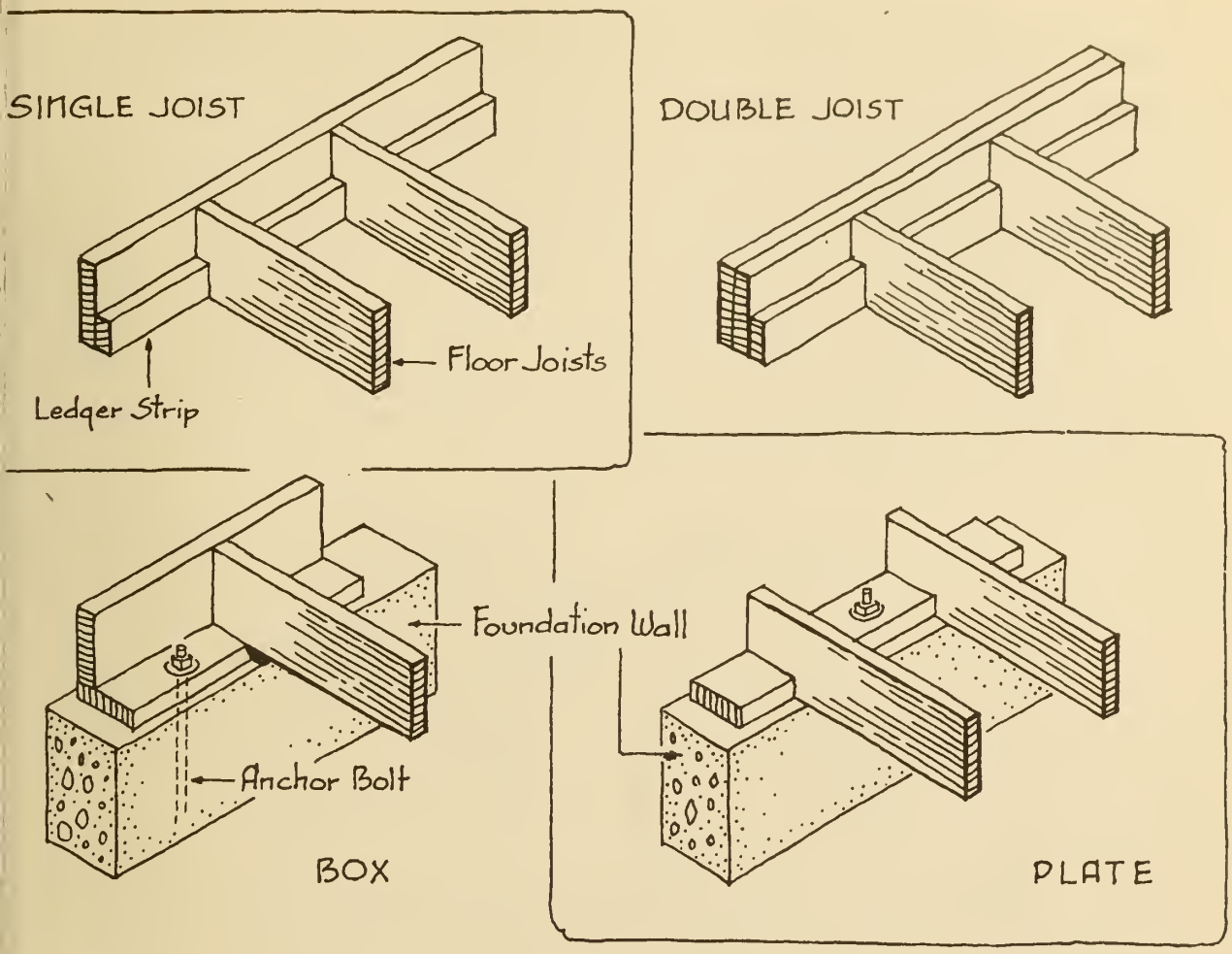
The same types of foundations described for log cabins may be used for a frame cottage (see page 19). Many small camp cottages rest on intermittent supports such as stones laid on the ground, concrete underpinnings, or cedar or locust posts sunk in the ground. As always, however, the continuous concrete or stone wall is preferable, both in appearance and stability.

FRAMING THE FLOOR

When the lumber is delivered, it should be sorted as to type and size and each piled by itself. A businesslike and orderly handling of the lumber will save much time and confusion as the job goes along. This applies not only to the full-length boards as delivered, but to short pieces sawed off as the work proceeds, which should be stacked as to kinds and lengths so that they can be easily located when needed. It should be remembered that lumber stored in the open must have crosspieces placed between the layers to prevent warping. This is necessary even if it is to remain in the pile but a few days. Covering the pile with sheets of building paper or roll roofing is an added precaution against moisture and resulting warpage.

Sills.—The sills are the horizontal pieces laid on the foundation which form the frame for the floor and support for the studs. If the foundation is of rocks or posts placed at intervals, the simple joist sill illustrated is recommended. This consists of a joist of the same size as the floor joists placed on edge, to which the floor joists are spiked as shown. For a very small cottage, a single-joist sill of this type is adequate, but if any dimension exceeds 12 feet, the double-joist sill will become necessary, which consists of two timbers of the same size spiked together. In this case a single-joist sill should first be constructed and, after the floor joists are nailed in place, the second joist spiked on the outside. This double arrangement is much to be preferred to one single large timber of the same size, in that it is stronger and will not tend to warp as solid timbers are inclined to do.

A continuous wall foundation, on the other hand, calls for a box sill, also a simply-constructed device, and probably the most widely used type of sill.



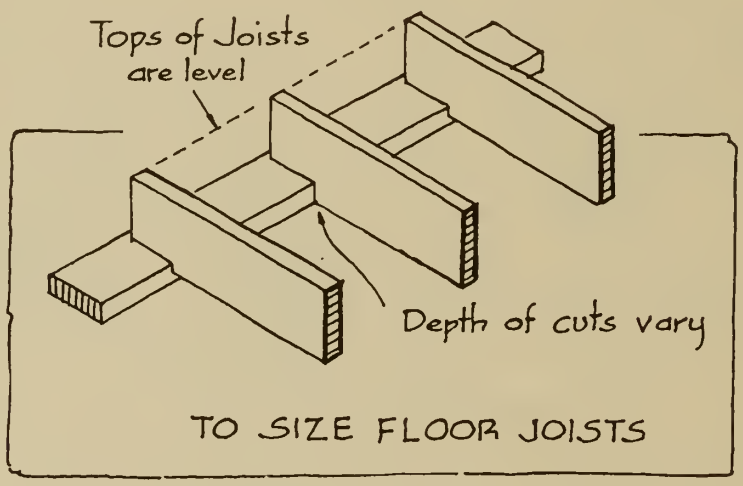
• SILL TYPES •

In this type of construction, a joist of the same size as the floor joists is laid flat on the foundation and another is placed on edge at its outer edge and spiked to it. The flat joist should be anchored to the foundation by bolts placed in the masonry of the foundation when it is built. These bolts should be ½ to ⅝ inch thick, spaced not over 8 feet apart, and equipped with washers and nuts.

The plate sill is another common type often used in preference to the box. The outer board of the box type is omitted and the ends of floor joists placed flush with the outer edge.

Sills should be checked for level and adjustments made when required by inserting shims of wood or stone between the foundation wall and sill.

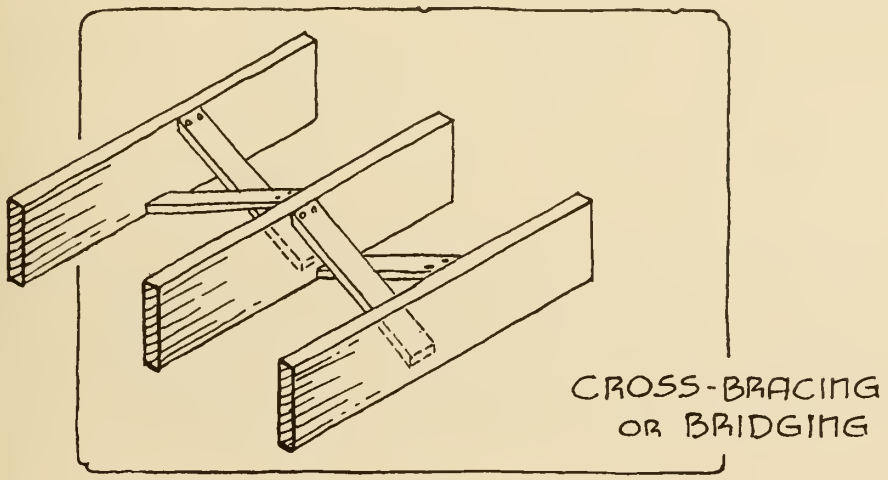
Floor Joists.—The size of the material used for floor joists will vary depending upon the size of the building, the weight of the structure, and the kind of wood used. Most cottages can be classed with the lightest of residential structures and the joist size selected accordingly. In an unplastered building, if the joists are placed 16 inches apart on center, which is the standard spacing, 2 x 6-inch joists may be used for spans up to 10 feet, or 2 x 8-inch for spans up to 13 feet, or 2 x 10-inch for spans up to 17 feet. In a plastered building, which increases the weight, the maximum span for each size should be figured two feet shorter than the above dimensions. If the joists are placed 12 inches apart on center, the length of the spans may be lengthened two feet for each size.



When the box sill is used, the floor joists will need to be *sized* so as to present a level surface for the flooring. This becomes necessary because joists of the same size as they come from the mill may actually vary as much as ¾ of an inch in width, and if merely nailed in place, an uneven floor surface will result. They are sized at the lower edge as shown in the illustration. Select the joist with the smallest width, and using this as the standard, measure down from the top edge of the other joists to this distance and draw a line. Then measure from the end the length of the bearing on the sill and saw out this piece. As the joists rest on the sill they will then all extend upward the same distance.

It will be found that the joists will usually have a slight bend when placed on edge; this bend should be placed upward so as to form a crown in

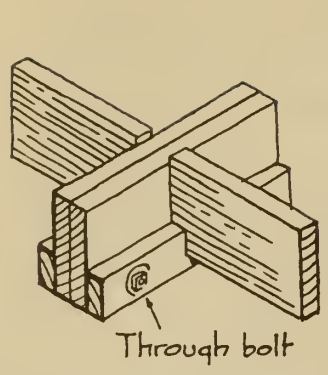
the middle of the span, and those with the largest curve should be selected for the center of the room. Likewise, it will be found that when the joists are in place they will curve sidewise, so that if spaced 16 inches on center at the ends they will not be actually so spaced at their centers. A strip of wood should be nailed temporarily across the center, previously marked with the proper spacing, and each joist shoved over under its marking and tacked there until the flooring is placed.



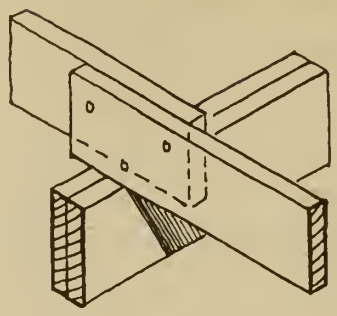
In areas that have a joist span of 10 feet or more that is unsupported, cross-bracing or bridging becomes necessary to give the floor rigidity. This is usually of 1 x 3-inch material cut and installed as illustrated. The pieces are nailed at the top edge only, and the bottom nailing withheld until the rough flooring, or at least sections of it, is in place.

In any situation where the joist span is greater than 12 feet, a girder is indicated to prevent sag and vibration. The girders must themselves be supported by posts or piers at intervals of every eight feet. The girder is made by spiking together two of the joists used to support the floors, or three of them in large structures, and to each side of this, spiking a 2 x 4 to which the floor joists are sized as in the illustration.

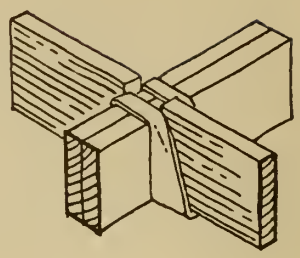
Rough Flooring.—The rough or sub-flooring is laid as soon as the joists are in place. This is usually laid diagonally to the joists so that the top floor boards when they are laid will cross the lower at an angle. In small cottages, however, it may well be laid parallel to the sills to save much work and time. In the latter case, when the floor is all laid except two or three boards at



USING LEDGER STRIP



JOISTS LAPPED ON TOP OF GIRDER



USING IRON HANGER

• SUPPORTING JOISTS AT GIRDERS •

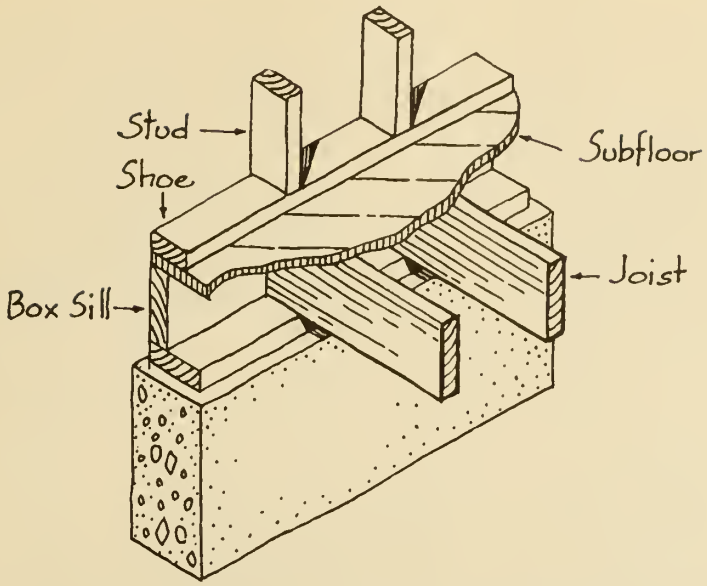
the far edge, measure the remaining distance and figure the width of the boards so that, if a narrow strip is needed to fill the space, it will not be placed at the edge but rather the width of two or three boards inward. All joints in the flooring should of course be cut over the joists.

FRAMING THE WALLS

With the rough flooring in place, the next step is to frame the walls.

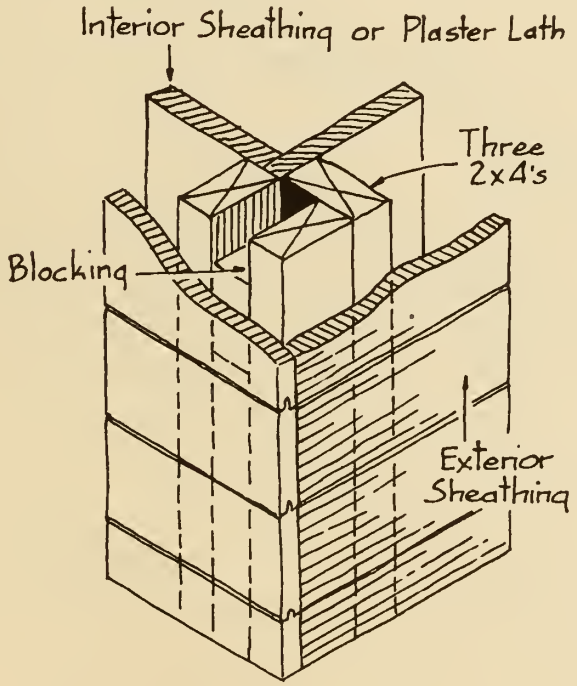
Wall Shoe.—When the sub-flooring is carefully trimmed at the edges of the sills, nail a 2 x 4 flat to the floor around the outer edge so that its edge is exactly flush with the edge of the sill. This is the *shoe* on which the studs are to stand. It runs continuously around the exterior except for the doorways, and also along the lines of all partitions.

Studs.—Let us assume first that the siding is to be placed horizontally. The studs should be placed 16 inches on center, unless it is a small one-story cottage in which case they may be spaced 24 inches. Mark this spacing on the shoe, then mark carefully the two side lines showing exactly where the edges of the stud will rest. Do this for each stud. The 2-x-4 that is to be the top plate will be the exact duplicate of the shoe except for the door openings. The piece that is to be used for this plate should be laid alongside the shoe and the stud markings made on it also—this saves much measuring and reduces the chances of error. Saw all the studs needed to



length, allowing for the thickness of the shoe and the thickness of the double plate at the top. Lay these aside until needed.

Now erect the corner posts. A different type of post is used depending upon whether the inside wall is to be finished or left with the studs exposed.

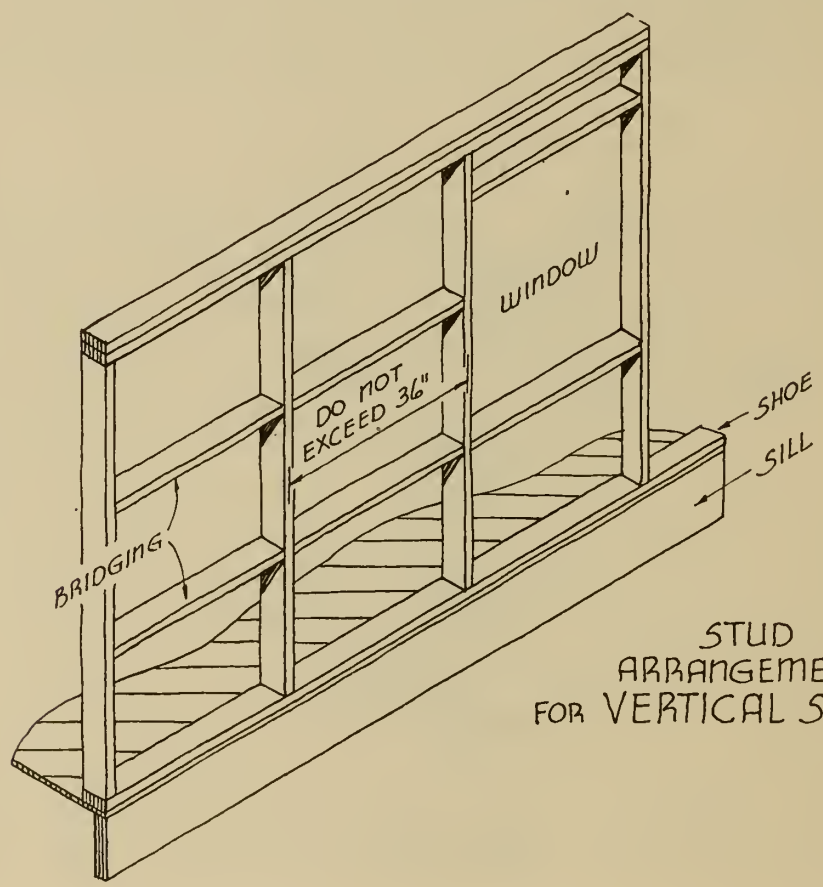


CORNER POST FOR INTERIOR FINISH

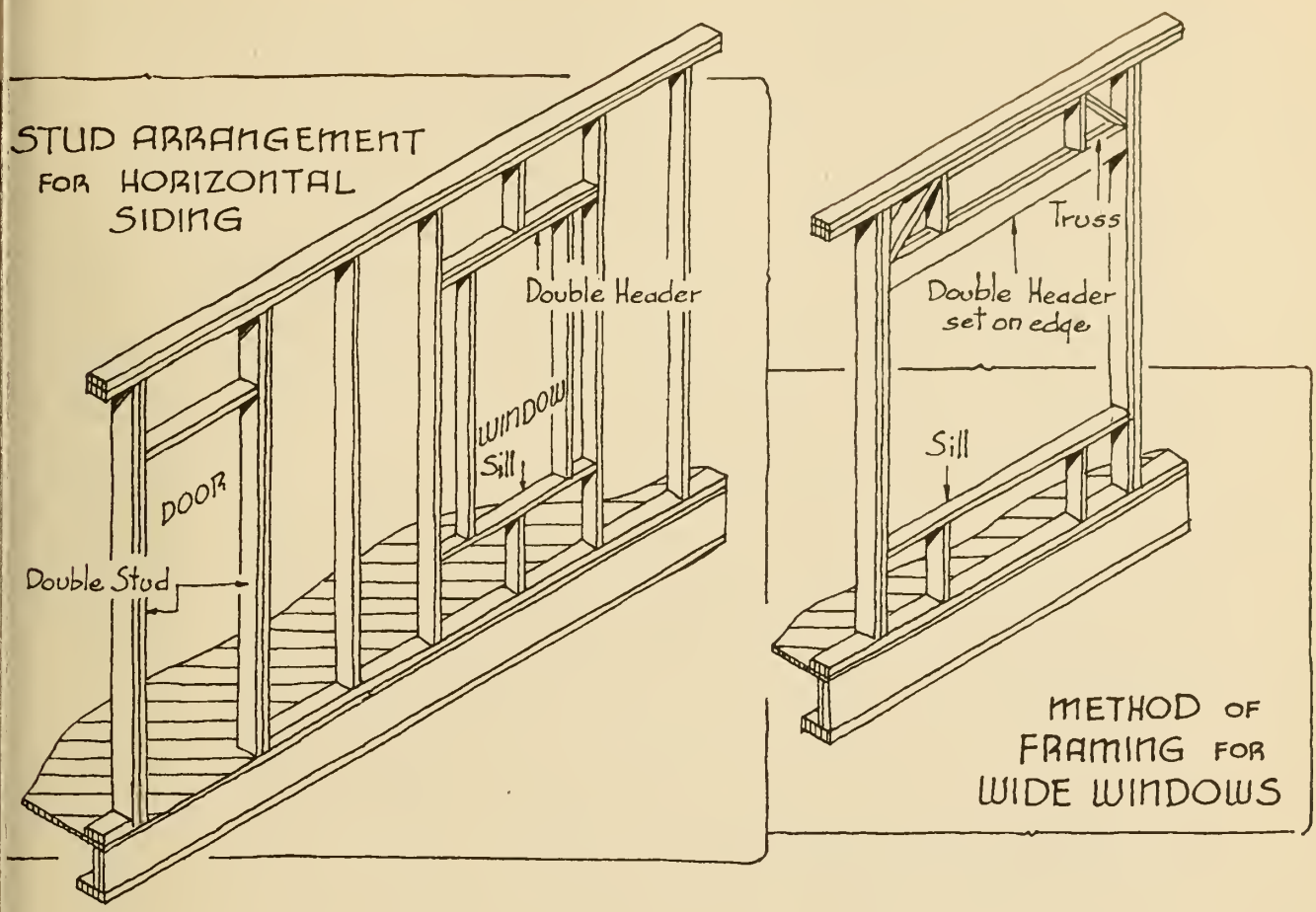
If not to be finished, the post is square, made of two pieces of 2-x-4 spiked together. If to be finished, the post is made of three 2-x-4's as illustrated, with a 1½-inch space left between the flat sides, thus to provide a corner for nailing the interior finish material.

Set the post in position and toe-nail the bottom to the shoe, then nail braces from the post to the sills, manipulating the post until it is exactly plumb before nailing the braces sécurely. The corner posts all in place, nail the marked top plate on top and insert a stud under it temporarily at its middle to prevent sagging. Now two men working together can insert the studs in short order, one nailing them at the top, and the other toe-nailing them at the bottom.

The studs in place, nail a second 2-x-4 on top of the plate to make a double thickness. As is always done when two pieces are nailed together in this way, if one curves the other should be so placed as to curve in the opposite direction. When spiked together, the curve in one offsets the other.



STUD ARRANGEMENT FOR VERTICAL SIDING



If the siding is to be placed vertically, the studs may be placed 24 to 30 inches apart, and horizontal pieces of 2-x-4's nailed between them to provide surfaces to which to nail the siding, as shown in the sketch.

Door and Window Openings.—Double studding is needed at the sides of door frames, but this is not necessary for windows. A double-header is needed across the top of wide window openings, however, which is not called for above doors unless unusually wide. Very wide windows call for diagonal trusses above the header as in the illustration.

If the interior walls are not to be finished, special care is needed to place the studs uniformly for neat appearance. In this case it is often wise to lay out the window and door openings on the shoe first, then to divide the remaining space between them and the corners into uniform sections, approximating the desired spacing between the studs. In this way, all studs are

uniformly spaced. Such care is not needed when the inside walls are to be covered with boarding so as to conceal the studs.

FRAMING THE ROOF

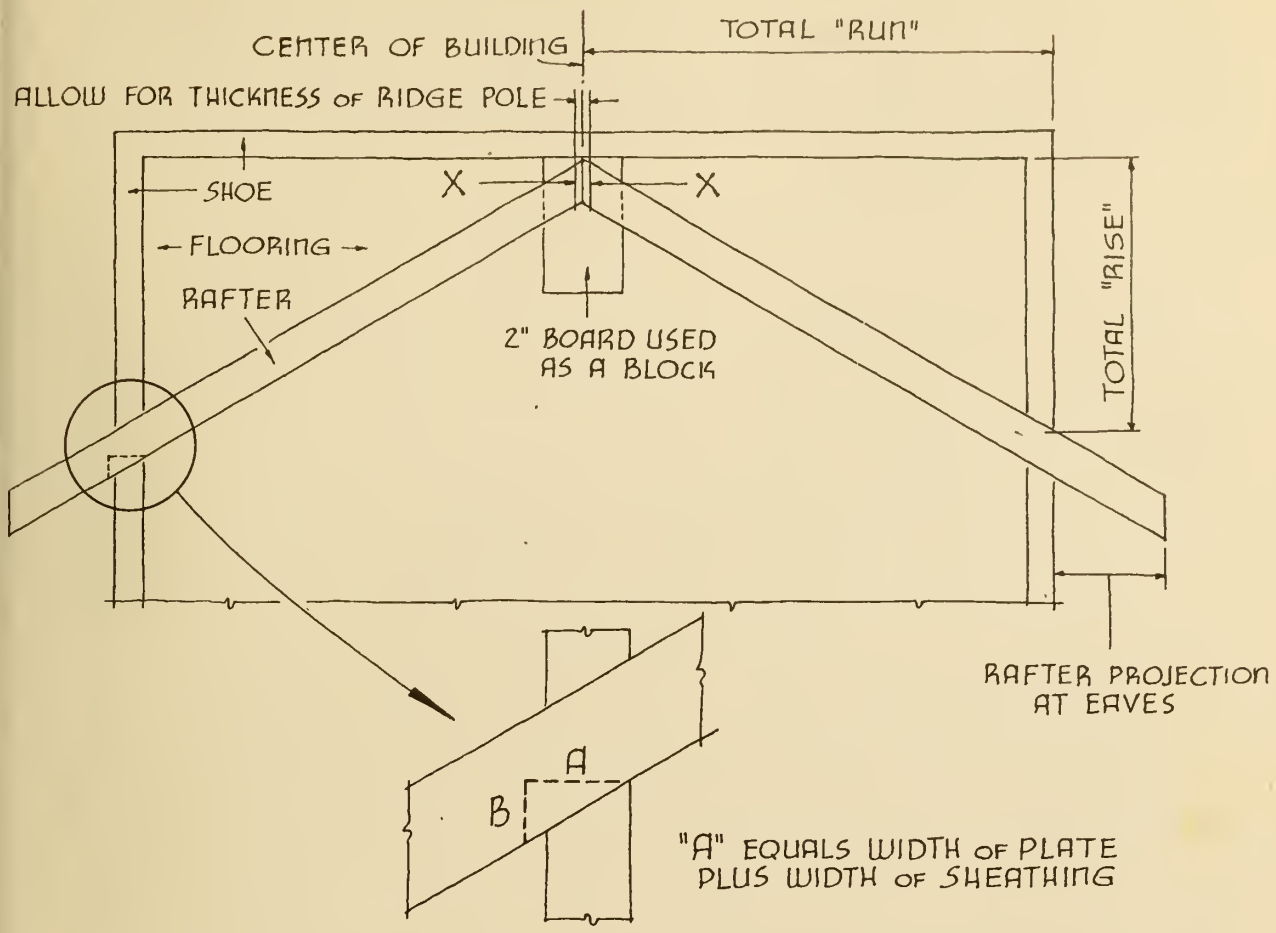
For the rafters use 2-x-4's for spans under 7 feet, 2-x-6's for spans up to 10 feet, and either 3-x-6's or 2-x-8's for spans up to 15 feet.

Rather than to figure the cutting of the rafters mathematically, which requires skill and experience, it is better to cut them by laying them in position on the shoe, which becomes possible since the shoe is an exact duplicate of the plate on which the rafters will rest. In this way the task becomes quite simple and the chance of error negligible.

First, mark very carefully on the top plate the position of each rafter in the same way as was done on the shoe for the studs. The rafters should be placed 24 inches on center. Then lay the ridge board on top of one of the top plates and mark the rafter positions on it in the same way, and having done this, transfer it to the opposite plate and check the positions.

Now, at one *end* of the building, measure very accurately the center point of the shoe, midway between the sides of the building, and draw a line at this point across the shoe with a square. This line will fall directly under the ridge of the roof. Lay a piece of two-inch lumber out from this line to provide a working surface at the level of the shoe. Now, on either side of this center line, draw a line marking the width of the ridge board to be used, as indicated at X in the drawing. If this ridge board is a 1-x-6, the two lines marking its width would be one inch apart.

Your cabin plans will of course specify the pitch of the roof. Measure down each side of the building the distance of the pitch or rise and mark this point on each side shoe—see the illustration. Now, lay a rafter on the floor with one corner touching the ridge-board line on the end shoe, and extending across the line on the shoe at the side, as in the sketch. With the aid of a square, one end of which is parallel with the shoe, extend the ridge-board line across the ridge end of the rafter and saw along this line—X in the drawing. Now, at the point where the lower edge of the rafter crosses the shoe, draw a line square with the shoe (A in the drawing), and measure from the edge the width of the plate plus the thickness of the boarding used on the walls; thus if the plate is four inches wide and the boarding one inch



thick, you would measure in five inches. Then draw the line B at right angles to A and saw along these lines.

Make the other rafter of the pair in the same way, nail the two together at the ridge point, with a piece of board the thickness of the ridge board between them, and nail a temporary brace across the two. Set the pair up, resting on the shoe, and check all dimensions. Dissemble the pair, and using them as patterns, make the remaining rafters in the same way.

The middle stud of the gable at each end is now put in position and braced temporarily, exceeding care being taken to see that it is exactly perpendicular in all directions. The ridge board is then placed on top of these studs. The end rafters at each end are first placed in position, and then the remaining ones, nailing them to the ridge board at the peak and to the plate at the other end.

This discussion assumes that a gable roof is used. Hip-roof framing is a different matter and a more difficult one. Here it will be wise to rely on the experience and know-how of your local carpenter, rather than to attempt to follow a book description. The same applies to dormers and extensions of the roof involving valleys.

BOARDING UP

Board-and-batten walls for summer use only, if applied vertically, need not be sheathed, but for winter use, should be boarded up with rough lumber before the exterior boards are applied. In this case the sheathing is applied horizontally.

If a vertical board-and-batten exterior has been decided upon, the two corner boards at each corner should be installed first. Next, the boards at either side of each opening such as doors and windows, then the remaining boards fitted in. Do not waste the time now with the battens, but board up the sides and proceed at once to cover the roof, thus to enclose the building.

If horizontal siding is to cover the exterior, the inner covering can well be applied horizontally. It is frequently specified that the sheathing be placed diagonally, which beyond argument makes a stronger structure, but it is questionable whether the advantages are sufficient to justify the added time and labor. Certainly, in a small structure horizontal sheathing will answer every purpose. Begin at the bottom and work up, placing the tongue edge of the boards upward. The essential thing is that the boarding be amply and very securely nailed.

The walls covered, proceed at once to board up the roof. Beginning at the bottom or eave edge, place the board so that it extends an inch beyond the edge of the rafters and nail in place. Then continue to work upward with the boarding. The boards should extend outward at the ends the distance called for by the plans, or more than this, and when all are in place, a line is run down the end of the roof and the boards are sawed off. A trim of some sort will be needed to terminate the boards at the ends, and if a special or fancy trim is not called for by the plans, a four-inch strip will serve, nailed to the ends of the roof boards, its top edge flush with the roof. A similar strip is nailed to the exposed ends of the rafters at the eaves.

The method of sheathing a roof surface to accommodate most finished

roofing materials is to nail the sheathing boards adjacent to one another with no space between. However, should wood shingles be decided upon for the finished roof, the sheathing boards should be separated sufficiently to allow air to circulate behind the shingles, thus preventing rotting and ultimate deterioration.

With the roof boarded, work can continue regardless of weather. It is for this reason that no more work is done on the walls than necessary while boarding them. The goal is to get the structure roughly enclosed as quickly as possible.

If the siding is board-and-batten, the battens should be nailed very securely over each joint with nails that are clinched on the inside in order to pull the strips down as tightly as possible. This is done by first nailing the battens with short nails, then nailing again with long nails while your partner holds a piece of metal against the spot on the inside to turn the nail.

ADDING THE TRIM

The word *trim* refers to the boards that edge the windows and doors, the boards at the corners of the building, the boards that edge the roof, and the like. Reference has already been made to applying the roof trim after the roof boards are in place. The trim on the walls must be installed before the siding is added.

The important thing to remember is that the wall trim must extend outward from the rough boarding far enough to cover the ends of the siding. If the material does not project this far, a backing of other material must be used to build it out. The usual thickness required is 1⅛ inches.

Bevel siding is sometimes used without corner boards, and sometimes with them, the latter making an easier job of it.

INSTALLING THE SIDING

In all cases except board-and-batten siding, the walls should be sheathed with rough lumber before the siding is applied, even if the building is to be used only in warm weather. Then the sheathing should be covered with a good quality of building paper carefully installed so as to overlay at the joints and run around the corners. This serves as insulation for warmth and protection from moisture, insects, and worms.

A point which amateurs usually do not understand is that in planning the building, the window and door openings must be so placed as to permit a fixed number of siding boards to fit above and below them with no cutting into the boards to make them fit around the openings. Both clapboards and bevel siding permit a little spreading to fill the necessary space, but this cannot be done with tongue-and-groove and most novelty types of siding. In either case, however, very careful figuring will be necessary, and at this point the services of an experienced carpenter will be appreciated. The siding is started at the bottom of the wall, and each course is laid with the aid of a chalk-line.

Whenever the siding butts against the corner boards or the trim, it must fit very snugly, and all joints in the siding should be forced very close.

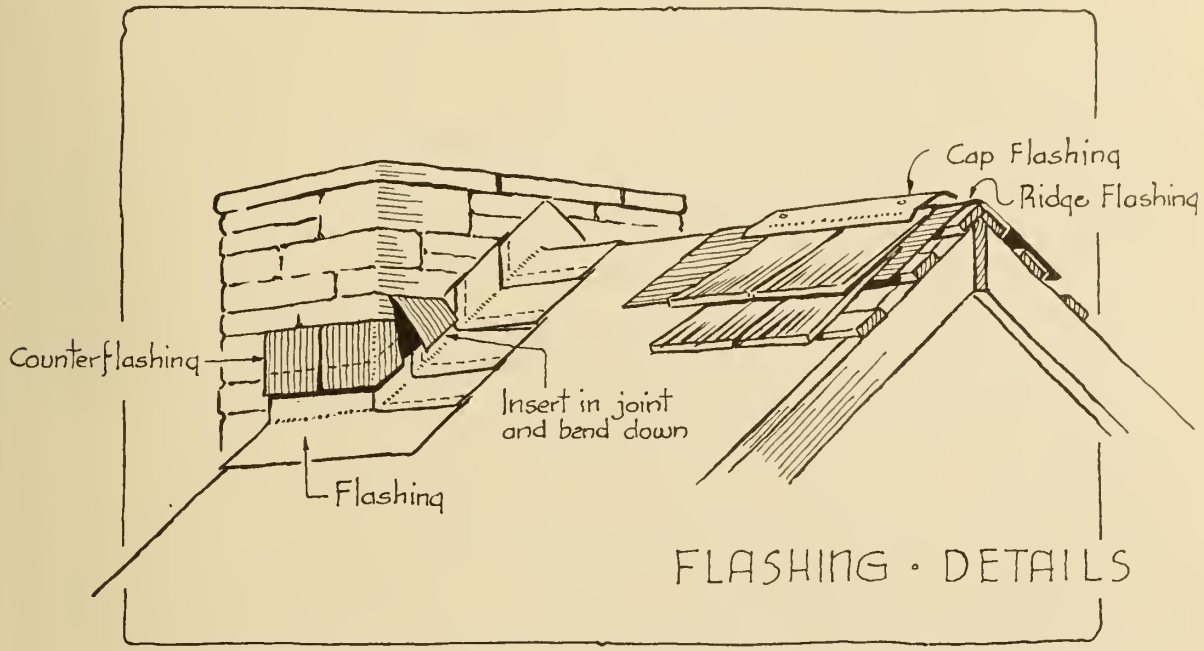
When shingle siding is used, it is customary to select the longer sizes of shingles, either 16- or 24-inch. More of the shingle can be exposed to the weather on the walls than is possible on the roof; whereas, on a roof a 16-inch shingle would be placed 5½ inches to the weather, and a 24-inch one 10 inches to the weather; on the walls the 16-inch length can be placed 6½ inches, and the 24-inch size 12 inches to the weather. They should be so placed as to cover completely the joints of those in the row beneath.

Shingles are installed by starting at the bottom and working upward. The bottom row should always be of double thickness, and likewise the row above windows and doors. The bottom row is laid evenly by means of a chalk-line. A board of the exact width of the exposed part of the shingles, and long enough to reach across the expanse of the walls, is then tacked across this row, and the shingles of the next row rested on it as they are nailed. This permits rapid installation.

ROOFING

The various types of roofing discussed for log cabins are applicable to frame cottages as well. In that discussion emphasis was placed on massiveness of roof effect to correspond with rugged structure, which of course would not apply to small frame buildings. Handmade shakes are the most rustic and appropriate of camp cottage roofing material for a frame cottage as well as any other. Roll roofing, asphalt shingles and wood shingles are all used, depending on preference.

Wood shingles 16 inches long are usually laid five inches to the weather. The lower or eave row is applied first, in double thickness, then by means of a board five inches wide, tacked over the lower row to serve as a guide, the next row is applied. The board is then moved up for the third row.



Around chimneys and other vertical projections rising from the roof, the corners must be made watertight by means of a flashing of tin, zinc, or copper sheeting. This sheeting is bent in the middle at an angle, one-half of it extending upward against the projection. It is lapped at the top by a counterflashing, which is built into the upright projection. For example, in the case of a chimney, a sheet of counterflashing is set into the horizontal masonry joint, and after the counterflashing is installed, is bent down over the flashing. Only in the case of roll roofing can flashing be omitted because the roofing itself can be turned upward against the vertical projection, and counterflashed as above. In this case, a strip of wood should be nailed in the angle of the roofing.

At the ridge it is well to install a two-foot strip of metal bent to extend a foot down each side, over which the shingles are nailed. Then the ridge cap is placed above the shingles as usual (see page 37).

FLOORS

The rough flooring should always be covered with a good quality waterproof building paper for insulation before the finished floor is laid. For best results in cold climates, a thin roll roofing is recommended. Under no conditions is it wise to omit this insulation, even if the cottage is for summer use only.

Only matched lumber is suitable for flooring, forced together as tightly as possible and very securely nailed. The floor is one place where cracks are never tolerable. The first board is placed against the shoe of one of the walls with the tongue edge away from the wall, and nailed directly through the board to the underflooring. The next board is then driven onto the tongue by placing a block of wood against it and driving it with a hammer. It is then toenailed through the tongue. Care should be taken to see that the end joints in the flooring are staggered.

The kind of wood used for the floor will depend on the type of finish to be used. If linoleum is to be used, any smooth tongue-and-groove lumber will do. If the plan calls for paint, softwood such as fir, spruce, or pine will suffice. If natural finish is desired, standard hardwood flooring is required, the type of wood selected depending on the finish desired. Such hardwood floors will require careful sanding.

INSIDE FINISH

The types of material that can be used to cover the inside of the walls, if indeed they are to be covered at all, are myriad. The important thing is that the inside finish be simple and plain, with complete avoidance of stilted, overdone, and sophisticated effects. Like the exterior, the interior must be in harmony with the wide outdoor world.

For a simple, unpretentious cabin one of the compressed wallboards may be adequate. Plywood is often employed for this purpose.

One of the most effective interiors for a cabin is a vertical board-and-batten treatment, which is effective whether painted or left with natural finish. Knotty boards in natural finish are particularly desirable. The boards with molded edges so prevalent nowadays in such a wide variety of patterns add interesting effects but should be selected with judgment and taste lest

the matter be overdone. Finishes with vertical joints require the installation of horizontal bridging between studs to provide surfaces to which to nail the ends occurring at joints.

PARTITIONS

The easiest type of partition to construct, and fully satisfactory if it will not be called upon to support heavy weight, consists of tongue-and-grooved vertical boards without the use of studs. A strip of quarter-round molding is nailed to the floor and another to the ceiling, or if there is no ceiling, to a 2-x-4 beam, the vertical boards nailed to these, and another strip of molding then nailed to the other side. This type of partition is particularly suitable for interiors that are not covered but left with the studding exposed, and is also acceptable for finished interiors of vertical boards.

When the type of inside finish calls for it, the partitions can be built of studs erected as in the case of the wall studs, set on a shoe, and spaced 24 inches on center.

DOORS AND WINDOWS

The discussion of doors and windows for log cabins will apply to the frame camp cottage as well. Here again, the casement window is the most appropriate and serviceable. Exterior doors should be in keeping with the lines of the cottage, and if it is of a rustic type, should preferably be made of planking. Panel doors, both for outside and inside use, are not as objectionable for frame cottages as for log cabins.

Both exterior and interior doors require frames made of 1½-inch thick planking, either fitted with a 1 x ½-inch strip called a "stop bead" or grooved (rabbeted) to accommodate the door thickness. If screen doors are contemplated, door frames must be double-rabbeted, with the space between rabbets sufficiently wide to permit both doors to be closed without interference by projecting door knobs, a point often overlooked by amateur builders.

CHAPTER V

STONE CONSTRUCTION

THE NATIVE things usable for cottage walls in their present form are logs and stone. When both are plentifully present, either can be selected, depending upon personal inclination and upon that which will best fit the immediate site. When either is absent, the other affords the wherewithal for a cottage of true native character.

To build well with stone is to build for the years, bulwarked against the ravages of weather and water, insects and fire. But to build with stone is to build slowly and laboriously—and expensively in labor consumed. One must be prepared for disillusionment if he expects his walls to rise rapidly, or if he anticipates that the stones will be as light to handle in the waning hours of the working day as in the dewy freshness of the morning. But if the walls take on height with exasperating slowness, it is with a satisfying feeling that as they rise today, so will they remain for years on end, and that work put in them now is labor and money saved tomorrow, with no need of painting or oiling, or insecticiding, or replacing decayed parts here and there.

If building stone, suitable for cutting, is not foreign to the locale, one is fortunate indeed, for such is always to be preferred to bowlders or rough field stones. Not that the latter are not serviceable, but that walls of them are less attractive and less easy of construction, are they relegated to the background as a second choice.

Bricks, which are really man-made stones, have no place in the natural world; a house made of them which might be wholly satisfying in civilized

surroundings would brazenly flaunt artificiality in the out-country. Akin to stones also is concrete, needed in masonry as a binding, but wholly foreign if used as a surface material in itself. Stucco, also coming to mind in this connection, is again an artificial material which assuredly would unmake the green-leaf and blue-sky picture. Only for beach houses on the seashore do concrete and stucco seem somehow to blend acceptably.

To record all that is needed to know to build a house of stone would involve much of the full story of masonry, and even then the recording of the facts would not put skill into the hands of the novice. As with the other types of construction discussed in this book, it is assumed that the assistance of the local craftsmen will be sought, thus necessitating a treatment of only the broad aspects here. Fortunately, stone masons are common to every community, both rural and urban.

SCALING THE CABIN TO THE SETTING

The wise cabin builder will not only address his attention to the selection of the appropriate materials, but to the proper scaling of these materials to the setting. The matter of scaling becomes particularly pertinent in the case of stones because of the types of settings where stones are most often employed, and where they are especially appropriate.

Stone of such size as to make a cottage appear rugged and secure, if placed on a quiet little midwestern wooded hillside, might seem so undersized as to suggest a cardboard dollhouse if placed in rough terrain with rugged mountains towering above it. There, the cottage might be of the same size, but the size of the rocks in the walls would need to be much larger and its lines more ruggedly conceived. Conversely, a cabin that seems a very part of its rough and turbulent mountain foundation might seem absurdly oversized in a more quiet and restful locale. Against an oversized background, an overscaled cabin becomes essential. As a general principle, unrestrained overscaling is indicated only against an extremely rugged background, and the scale of the elements should be reduced in proper proportion as the ruggedness of the background diminishes. But, lest this principle be carried to an extreme of frailty at the lower level, let it be said that in out-country architecture, the error should be made on the side of overscaling, rather than the reverse.

Not only is the background of the far vista a factor affecting the scale

of the elements, but also the immediate terrain that upholds the foundation. Stone cabins are often built on outcroppings of rock where, if overscaled, they can be made to appear a very part of this outcropping, with the line of demarcation difficult to observe. This blending with the rock footing can often be facilitated, conditions permitting, by using battered or buttressed walls, wider at the bottom than at the top, with rough and unmasoned rocks pyramiding away from the walls to the natural rock below them. This is particularly effective if the outcropping has a sloping or hillside slant, making the elevation of the building appear to be a continuation of the rocky slope. This overscaling and battering of the walls might appear clumsy and distressingly overweighted on a level and slenderly wooded terrain.

All of which is to emphasize that the broad aspect of the distant look and the degree of ruggedness of the immediate surroundings should both be viewed with a critical and imaginative eye to determine the scale that would best blend the cabin in as a part of nature's own handiwork.

The discussion of the stone elements as to size in the discourse that follows is slanted for buildings of average scale on level terrain. With these facts as a point of departure, the elements can be overscaled as conditions indicate.

COMBINATIONS OF STONE AND WOOD

A certain coldness often creeps into all-stone dwellings which in other respects seem altogether pleasing and inviting, and no amount of architectural manipulation as to lines seems wholly to alleviate it. It is the coldness that is inherent in stone as the human organism reacts to it, and which, in an assembled mass, arises from the unbroken allness of the stone aspect. The working of logs or wood in some form into the building, even if only for decorative highlights, often helps relieve the monument-like quality of the all-stone facade, and does much to give the structure warmth.

The pursuit of warmth and added character often leads to structural combinations of stone and wood so that the qualities of each can make their full contribution. Above the stone walls which are carried up to the eaves, gables of logs, rough-sawn siding, or vertical boards and battens may arise. In two-story structures the stone elevation may extend upward to cover the first floor, above which wood takes over. The line of demarcation between the

two may be irregular, with a pleasing lift and drop that adds the charm of informality. Again, one section of the building may be of stone and the balance of wood.

The needed warmth in an all-stone building can sometimes be achieved in the proper handling of the roof, particularly if it has enough pitch so that its surface becomes a conspicuous part of the overall picture. As always, massive walls call for massive roofs. Shakes or thick shingles, perhaps with every fifth row doubled, not only provide the needed ruggedness to many stone buildings, but, on a roof with sufficient slope to make it conspicuous, adds also an expanse of wood that tones down and warms up the stone elevations. Log rafters vigorous in scale, the ends of which protrude conspicuously, often blend with stone agreeably.

SELECTING THE STONE

The two main categories are cut stone and bowlders.

Cut Stone.—Many of the granites, marbles, limestones, and sandstones are suitable for cutting into blocks for construction purposes. It is a question of what the locality offers that is suitable, for manifestly stone would not be imported where it is not indigenous. Of the local resources and their suitability, the local stonemason will know well the answers. In addition to the hardness, durability, and resistance to weather necessary to qualify stone for building purposes, its color also is an important consideration.

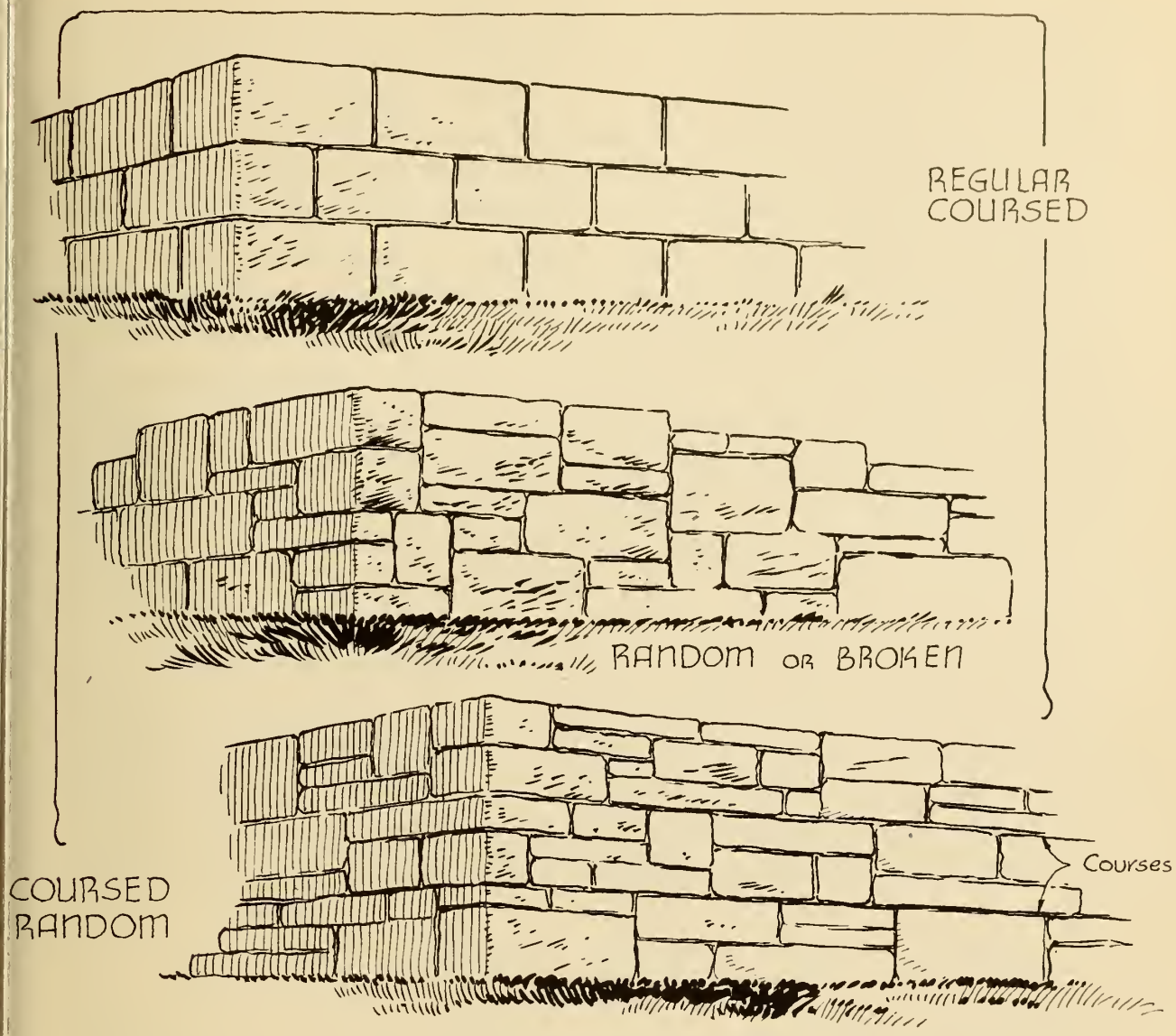
In well-built structures, the walls are sometimes made solidly of cut stone, with both inner and outer surfaces presenting a similar and equally finished appearance. This is the most expensive method of construction, not common nowadays, and rare indeed in dwellings. Another method more economical of stone and much more widely employed, is merely to face the wall with cut stone, and to back it with cheaper stone, wood, or concrete. When concrete is used for the backing and the stones of the facing are unusually thin, the method is referred to as Flagg masonry. Frame houses faced with stone are a common sight in cities, a process called *stone veneer,* but this obvious effort to give the impression that the walls are made of materials they are not, has little to recommend it in an open-country cottage. No apologies are necessary for a frame cottage and it is better taste to let it stand just for what it is, uncamouflaged.

When a wall is faced with cut stone and backed with other masonry, the cut stone of the facing is *ashlar*. Sometimes cut stones of odd and irregular shapes are used, often including the trimmings and broken pieces picked up in the stone yard—such stones are called *rubble,* and when walls are faced with them, fitted together as best they may be, the type of construction is called *random rubble.*

When cut stones are laid in horizontal layers, the process is called *coursing* and each layer is referred to as a *course.* There are several methods of coursing and your cottage plans will of course indicate the one to be used. The method of coursing will affect the shape and size of the stones selected or ordered cut. The coursing simplest of installation, but at the same time most severe in finished appearance, uses ashlar of the same height laid in continuous horizontal courses after the manner of bricks—this is called *regular coursed ashlar.* It portrays the formality, coldness, and fixity of precise masonry, and against the straight lines of these unbroken joints all the world of nature will protest. Infinitely to be preferred is the use of stones of uneven height, which immediately relieves the wall of any semblance of straight joints—such a method is called *random* or *broken ashlar.* To build in this manner is to devote more time to the task, but the rewards are substantial in the greater freedom, variation, and informality of texture, absence of harshness and fixity, and harmony with nature's wavering way. Another method is a compromise between the two: there are straight horizontal joints varying from a foot to two feet apart, between which the stones are arranged irregularly—this is called *coursed random ashlar.* In any case, it is understood that, as in laying bricks, the stones are so laid up as to avoid unbroken *vertical* joints. Between these various methods there are endless variations and combinations depending on the size, shape, and proportions of the stones, and the way they are combined into the wall, all of which will be well understood by your stonemason.

Much of the finished appearance will depend on the texture of the stone and degree of finish given its surface. Needless to say, stones left rough and irregular, unsmoothed after they are broken, will give an appropriate informal and natural quality that would be lost by the severity and formal rigidity of smoothly finished surfaces.

The stones are usually cut to size by stonecutters at the stone yards, and



thus require only minor trimmings at the site of the building. The stones used for facing a wall usually vary from four to eight inches in thickness, with six inches used as an average in ordering; thinner than four inches would not be recommended for an exterior surface. Heights vary from two to fourteen inches, and for random ashlar it is customary to order six different heights. Irregularity in width is essential in order to bond the ashlar to the concrete backing. In ordering, one can specify that the surface of the stones be hammered smooth, or left irregular and rugged, depending upon the degree of rusticity desired.

Bowlders.—One starts with two strikes against him in the use of bowlders as compared to cut stone, but with care and judgment an interesting and wholly acceptable exterior can be achieved. If native to the spot, their use is always to be preferred to imported material. Much depends on the size and spacing of the stones. The bowlders must have sufficient mass so as to carry no suggestion of pebbles as viewed from a distance, reminding one of a showcase full of salted peanuts. The two extremes of spacing the stones too close together or too far apart should be assiduously avoided. If so close together that no surrounding mortar is visible, one views with apprehension lest they bulge out and come rolling to the ground like an upset barrel of apples. Again, if too far apart, with wide areas of concrete showing, the wall takes on that "peanut brittle" look which is one of the most prevalent and disturbing offenses of farm and tourist-camp masonry. The spacing should be such as to suggest a stone wall, not one of concrete with an occasional stone thrown in, yet there should be clearly visible around each bowlder a layer of bonding concrete.

There is, of course, no fear of straight joints with the use of bowlders, yet monotonous uniformity can easily result if all bowlders are of approximately the same size. Large rocks at the bottom are essential to give the feeling of substantial footing, yet it would be an egregious error to confine all the larger sizes to the lower levels. Variety in size, throughout the entire surface, placed with a sense of proportion and taste, adds to informality and character.

LAYING UP THE WALLS

With such great weight upon it, the earth that is to upbear the walls must be exceedingly solid. Best is to build on solid rock, its tiers lying horizontally and not uptilted, but if on earth, there must be no doubt as to its solidity. If by digging down a reasonable distance solid and hard-packed earth is not encountered, it is no place to erect stone walls. The rock and concrete foundation must have ample spread of footing, more or less depending on the nature of the soil.

The Mortar Mixture.—If the wall is to be faced with stone and backed with concrete or coarse rock, two types of mixtures of mortar will be needed, one to hold the facing stones, and the other for the backing. For the mortar

to go between the stones of the facing, a mixture of one part of Portland cement and two parts of sand is needed. Pit sand is considered best because of its angular shape; lake or river sand ground smooth and round by the action of the water is somewhat less desirable; but either will be acceptable. Sand must be clean, and free of all clay or soil matter. These ingredients should be thoroughly mixed dry until the mixture takes on a uniform color, then placed in a pile with a depression in the center which is filled with water. The dry mixture is then worked into the water by pulling it in from the sides of the crater a little at a time, adding water as need be until a pliable mixture results.

For the backing of the wall, an aggregate must be added to the sand and cement mixture to provide body for the concrete. While crushed rock is considered the best aggregate, gravel is the most commonly used and is satisfactory. In the case of crushed rock, the maximum length of the pieces should be three inches for best results.

The proportions for mixing concrete are as follows:

CONCRETE MIXTURES

Cement	*Sand*	*Aggregate*	*Uses*
1	2	4	For great strength
1	2½	5	Moderate strength—walls of small buildings, steps, etc.
1	3	6	Minimum strength—walks, floors, etc.

For the walls of moderate-sized cottages, the 1-2½-5 mixture is adequate and recommended.

Wall Masonry.—The walls of a cottage of average size should run 12 to 16 inches in thickness. If to be built solidly of stone, the stone should be laid up in the usual manner of masonry with a layer of rich concrete between. Battered walls, wider at the bottom than at the top, are not needed in a house of average size; the walls should rise perpendicular to the ground, of uniform thickness throughout, and should be kept plumb on both faces.

If the walls are to be of concrete faced with stone, they should be a full

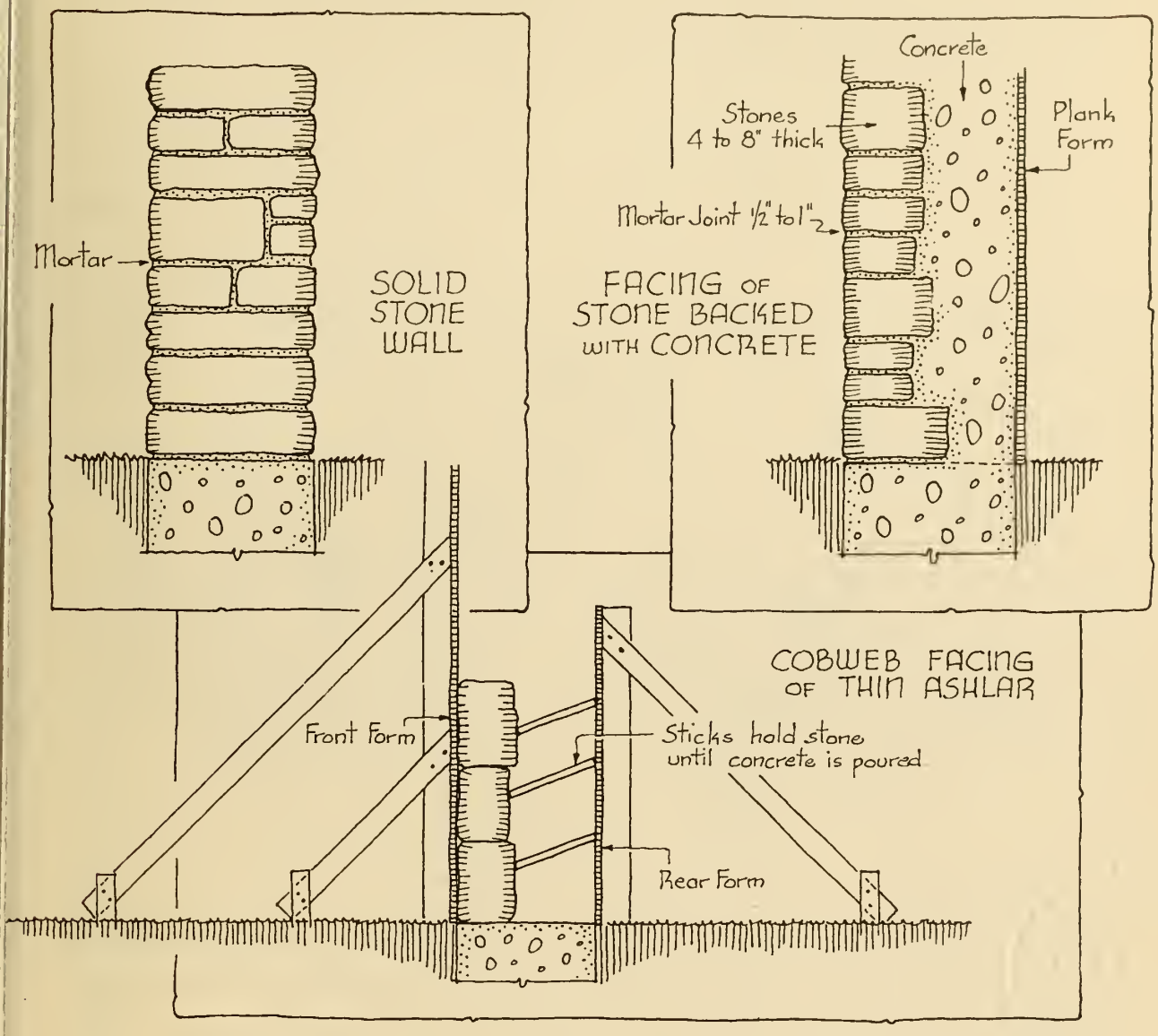
16 inches thick. The stone facing, varying in thickness from four to eight inches as it should, can be regarded as having an average thickness of six inches, which would mean that there should be a backing of 10 inches of concrete. The masonry may be laid with the aid of a form of lumber on the backside of the wall only, or with forms on both the back and the front sides. If only one form is to be used, it should be made of 1 x 6-inch lumber on 2 x 4 supports, so as to present a smooth surface against which to pour the concrete, and should be exactly perpendicular to the ground. The stones of the front surface are then laid and mortared in the usual manner, and after two or three courses are in place, the backing of concrete is poured in up to the height of the stones and well tamped down against the form. It is essential that the backing be installed at the same time that the face stones are laid in order that it bond into a solid wall. Constant care must be taken to see that the front surface is kept parallel to the back form.

Greater hope of a plumb wall will result if a front form is used, and in the end time will probably be saved thereby. If the facing stones are thin, as in the case of Flagg masonry, a front form is indispensable. The front form should be built first, to the full height of the proposed wall, but the back form should be carried up only to the height of two or three feet. By standing behind the back form and reaching down inside, the stones can be easily placed and mortared. After each stone is in place a stick should be placed against it, supported by the back form, as in the illustration, to hold the stone in place while the concrete is poured, after which it is removed. When the masonry reaches the height of the back form, the form is then carried up another two feet.

Each stone should be wet thoroughly before it is placed in the mortar. When work is begun in the morning, the concrete laid the day before should be wet before new mortar is laid on top of it. It should be remembered as a principle that whenever an object is laid against fresh mortar, whether it be a stone or concrete already hardened, that object should first be wet.

Having brought the walls up to the scheduled height, a series of iron bolts should be set upright in the masonry at intervals of every two feet, to which 2 x 6's are bolted to form the plate, onto which the rafters are to be fitted. These bolts are installed in the same way as in the foundation of a frame house, for holding the sills, as illustrated on page 57.

The wooden forms removed, it will be necessary to point up the honeycombs in the interior surface with cement, so that all small holes are filled.



WINDOW AND DOOR VOIDS

When window and door openings are reached in laying up the walls, the window or door frames can either be set in position and the stones laid up around them, or a simple formwork, the size of the opening, can be inserted, to be later removed and the finished frame set in the opening created.

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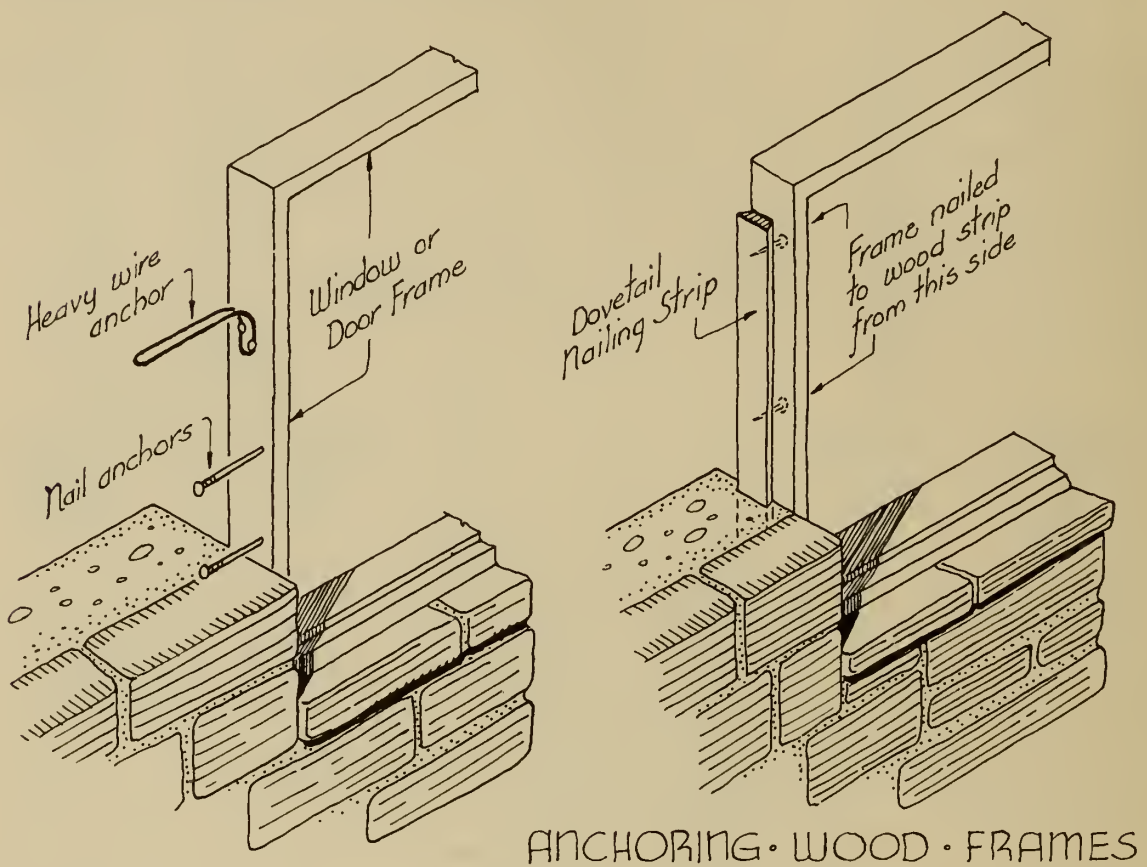
Door and window frames should be securely anchored in place and pointed with mortar between wood and stone. Anchors may be nails or wires secured to the frames and inserted between stones as the laying proceeds. Another method is to imbed wood blocking in the stone and concrete work, to which the frames are later nailed.



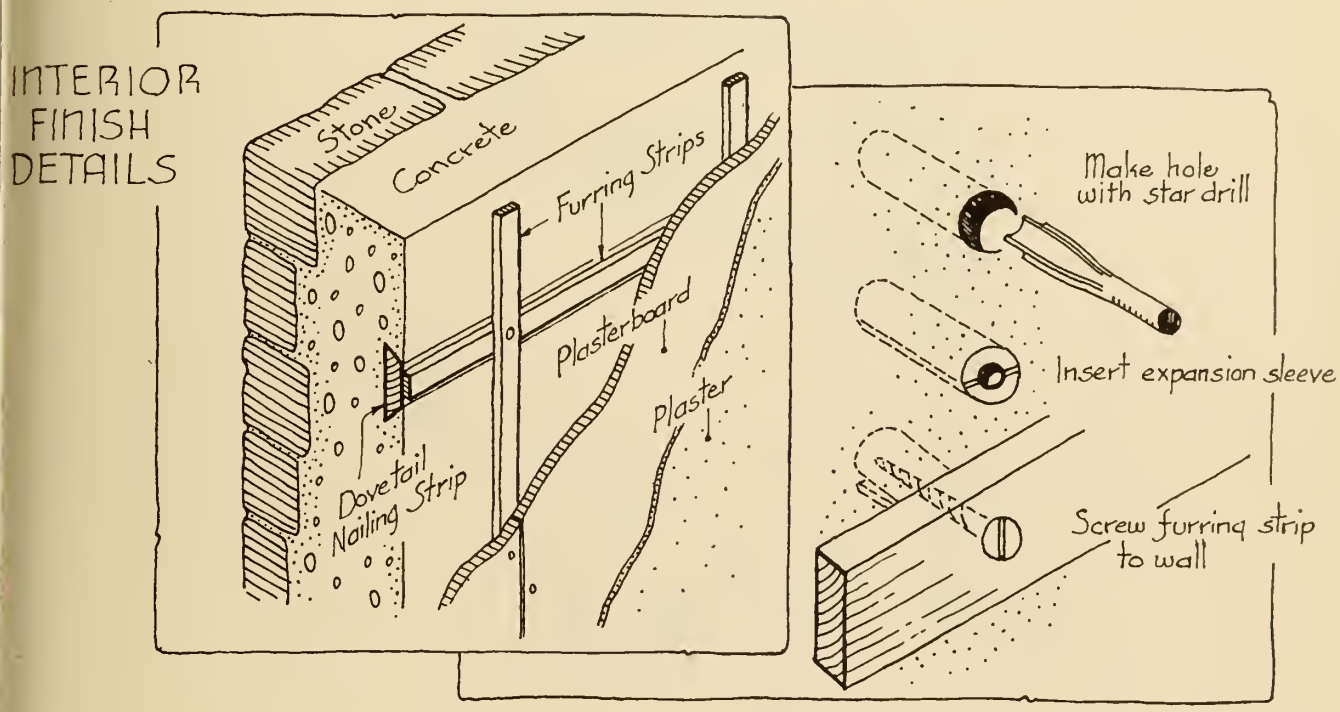
ANCHORING · WOOD · FRAMES

Across the top of windows and doors a lintel must be placed to support the weight of the stone above. For this an angle iron is needed measuring 6 x 4 x ⅜ inches, for average openings, and long enough to extend 6 inches at either side of the opening. This is set just behind the stone facing of the wall, with the four-inch projection extending upward. Behind this and imbedded in the concrete, two one-inch deformed rods should extend across the opening, placed two inches above the level of the opening.

Exterior window sills will, of course, be of flat stone laid under the window frame. Interior sills may be of wood nailed to wood blocks imbedded in the concrete, or may be of stone, slate or other masonry material.

INTERIOR FINISH

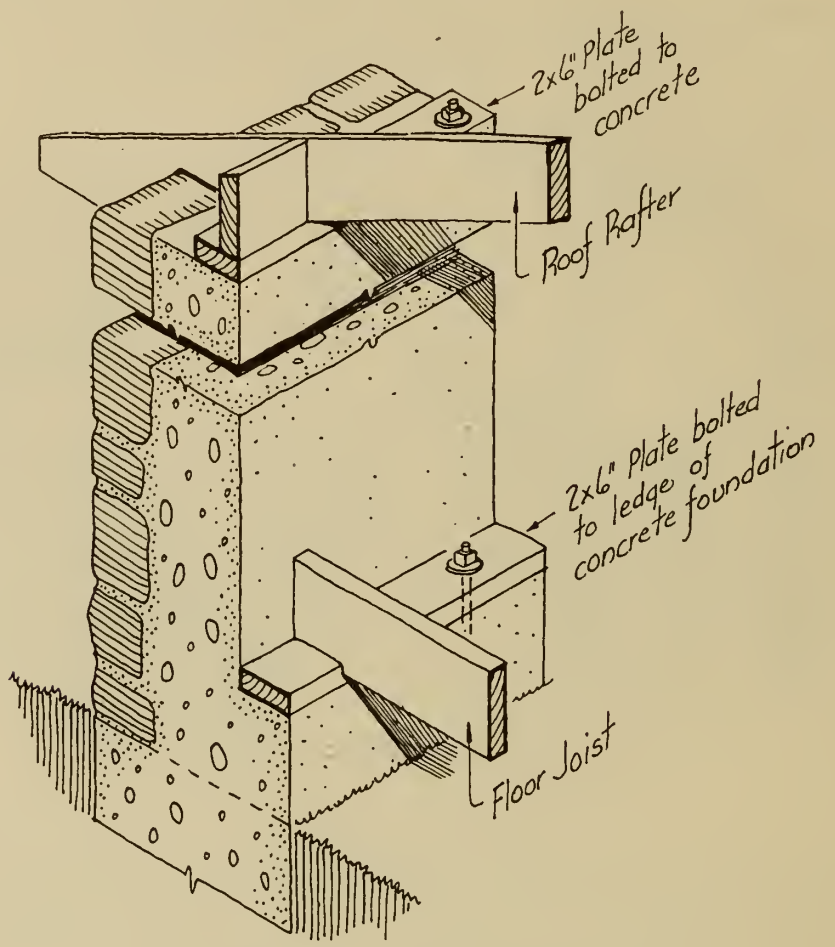
The interior surfaces of the walls will have to be finished in some way, either with a dash coat of concrete or with lath and plaster. The easiest but least satisfactory method is to give the walls a ¼-inch dash coat of concrete which can then be painted or decorated as desired. Such concrete finishes are apt to be cold in appearance, and damp. Moreover, no means has yet been discovered of applying a dash coat over concrete so as to insure it against cracking and peeling off after a period of time.



A warmer and more homelike interior will result if the walls are furred with wood and plastered. By furring is meant strips of wood about ¾ x 2 inches, placed vertically about two feet on center, over which lath and plaster are applied. Furring strips may be nailed to the concrete with concrete nails, or a lead or wooden plug may be set in a hole in the concrete made with a star drill, into which nails are driven if it is wood, or screws used if it is lead. Another device is to attach continuous horizontal 1 x 2-inch dovetail strips of wood to the back of the form before the concrete is poured, which remain in the concrete after the form is removed. Since these dovetail

strips are wider at the back than in the front, the concrete grips them securely. Over these embedded strips the furring strips are applied, as in the illustration.

The lathing and plastering is then completed as in any other type of structure. Vertical or horizontal boards as described under frame-cottage construction may also be used for interior finishing, nailing them to the furring strips.



COMPLETING THE BUILDING

Once the stone walls are up, the wood sections of the structure are completed as in any frame building. Reference has already been made to the sill of wood bolted to the top of the stone wall, to which the rafters of the roof are fitted as in ordinary frame-house construction.

If wood floors are to be used (they will be found much warmer and more

cozy than concrete) the foundation will have to be so built as to provide a shoulder on which the floor joists are to rest. This would mean that the foundations should be six inches thicker than the wall up to the level of the joists, as in the illustration. A 2 x 6 plate is laid flat on this shoulder and bolted down by bolts inserted in the concrete when it is poured.

Sills, plates, joists and other wood members coming in direct contact with stone or concrete should be well creosoted, treated with oil, or painted to prevent moisture decay.

CHAPTER VI

ADOBE CONSTRUCTION

THE LAND of sun, silence, and adobe! Yes, adobe is one with sunshine, surviving only where sun is master over moisture. It belongs to those far-seeing silent expanses, those boundless semi-arid sweeps, those sun-drenched day-long noons and starry noiseless nights that are the American Southwest. There, adobe is at home and has a quaint and matchless charm; elsewhere it is more apt to be a mere clod of clay. There, to build with adobe is to build with that which is native, wholly indigenous, and altogether becoming.

In its native land, the craft of adobe, whether of the making of the bricks or the laying of them into walls, holds no special secrets—as with building with logs in the Northwoods, the know-how is as common in the area as the knowledge of local methods are everywhere. Outside 'dobe-land, the methods have no significance anyway for, while these clay bricks will stand for hundreds of years in sufficiently arid climates, they may crumble in a matter of weeks when subjected to moisture. Where adobe houses are practical, help and advice will therefore be close at hand and readily obtainable.

The term adobe has come to mean not only sun-dried bricks of clay, but a certain characteristic type of architecture that has evolved from their use. This style, often referred to as Southwest or Spanish from the Southwest land where it is indigenous, is by no means limited to that area but is seen widely across America. The point is that this style may be used any place, even though other material must be substituted for adobe bricks in the walls

and covered with stucco to give the adobe look. Thought must be given to the appropriateness of the style in areas foreign to it, however, for the oft-stated principle of "nativeness" of materials and design in summer-home construction would indicate that in most such areas its use would be anything but agreeable.

The adobe picture is that of a low one-story structure with long, horizontal lines, all corners and edges rounded, with a minimum of windows, a recessed porch supported by log posts surmounted by shaped wooden brackets, with log rafters or *vigas* projecting at ceiling level, and with a parapet or low wall surrounding the flat roof (see the cottage sketch on page 120). The severity and box-like harshness of the traditional simple houses may be delightfully relieved by an irregular skyline at the top of the parapet, haphazardly rising and falling, and, in large structures, by varying roof levels. Larger houses may enclose a patio, all or in part, with an adobe fence of rounded top lines tied into the walls and shutting in the open sections. Of great appeal is the adobe layout in which sleeping rooms are separate little houses in this corner and that of the patio, wall-enclosed to tie all to the central building.

ADOBE BRICKS

Traditionally adobe bricks are sun-dried bricks of any stiff clay, worked into a paste with water into which straw, hay, or wiry grass is mixed. They are molded into shape and laid on boards to dry, and turned each day for a period of a week or two. When hard, they are stacked until needed. Commercial adobe bricks may be either sun or kiln dried.

The size of the brick varies depending upon the width of the walls required in the particular area, the width of the brick being that of the wall. In Arizona where 12-inch walls are customary, the bricks are 4 inches high, 12 inches wide and 18 inches long. In New Mexico where 10-inch walls are recommended, the bricks measure 4 x 10 x 14 inches.

BUILDING WITH ADOBE

The foundation should be of concrete or stone carried above the ground level to insure the dryness so all-important in adobe construction. The floor joists are set on the foundation after treating the ends with creosote or oil.

The bricks are laid up in the usual manner, avoiding vertical joints. The walls will rise rapidly since the bricks are large and are the full width of the wall, eliminating the need of piecing. The mortar should be of clay similar in composition to that used in the bricks themselves. The masonry should be carried on in uniform stages, allowing time for drying and settlement.

One-story buildings are the usual type in adobe areas, in which case the walls should not exceed 12 feet in height. As previously stated, in Arizona the walls are usually 12 inches thick and in New Mexico 10 inches thick. In two-story buildings, the walls should be 18 inches thick throughout the 12 feet of the first story, and 12 inches thick above, with an overall height not exceeding 22 feet.

Lintels are necessary over the windows and doors, which in modern construction are often of concrete, eight inches deep reinforced with steel rods; concrete lintels four inches deep unreinforced are then used under the windows. Wooden lintels are used in traditional construction for which 6 x 8-inch beams are recommended.

The log rafters of the roof are set in the bricks and usually are allowed to extend through to the outside for a distance of a foot or 18 inches—these projecting vigas are one of the chief charms of adobe architecture. The rafters should rest on a plate set in the bricks, either of wood, or concrete six to eight inches thick, reinforced with rods. If the projecting vigas are not desired, milled joists may be used.

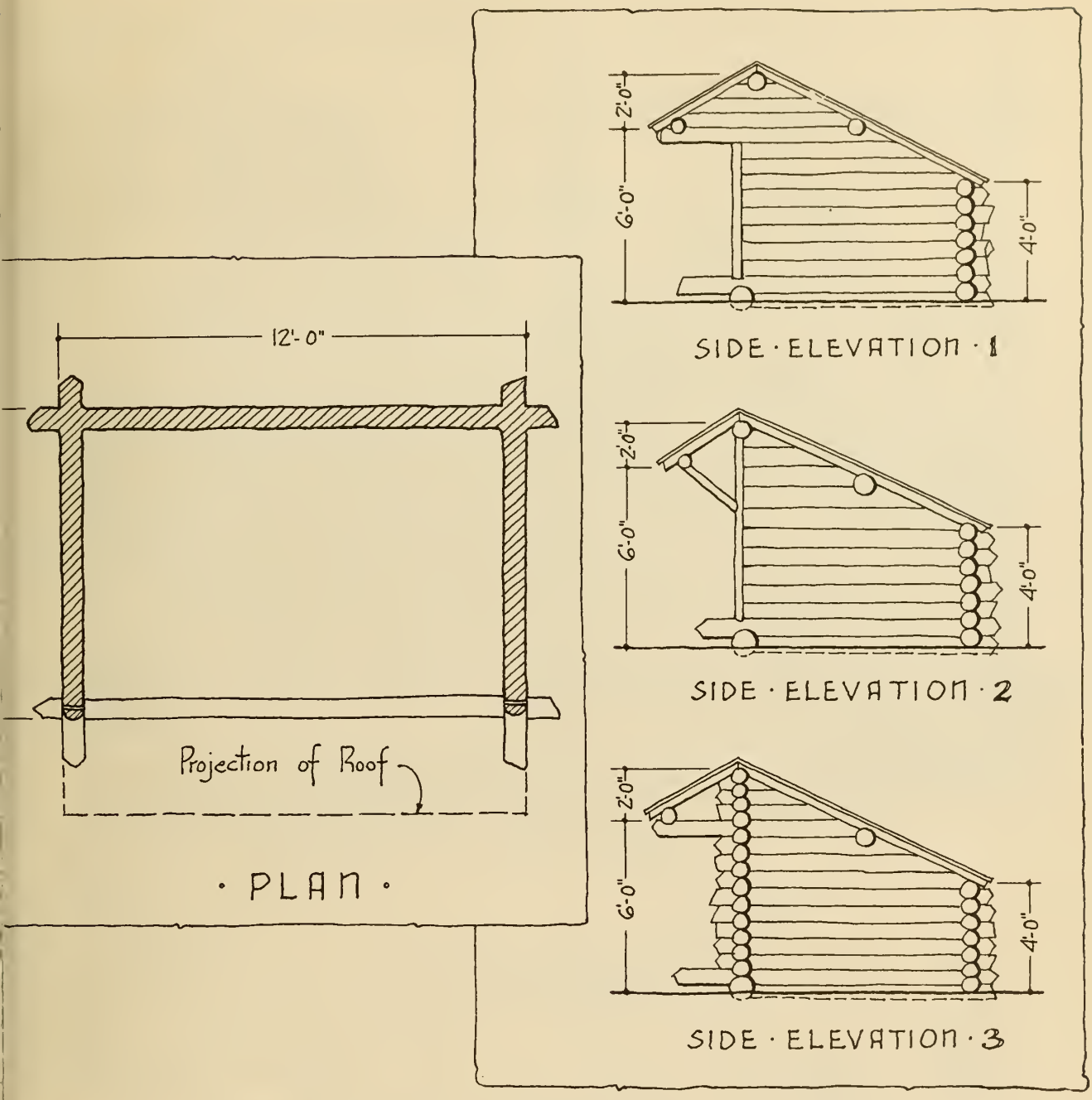
Above the rafters the brick elevation is continued upward to form the parapet or low wall surrounding the flat roof. Composition roofing is usually employed. Metal flashing is necessary in the corners between the roof and the parapet. If a pitched roof is preferred to a flat one, a concrete beam crowns the wall at the plate, eight inches high and of the thickness of the wall, to which a 2 x 6 is bolted into the concrete to form the plate.

Interior partitions, if not to bear weight, are eight inches in thickness, and are toothed into the side walls.

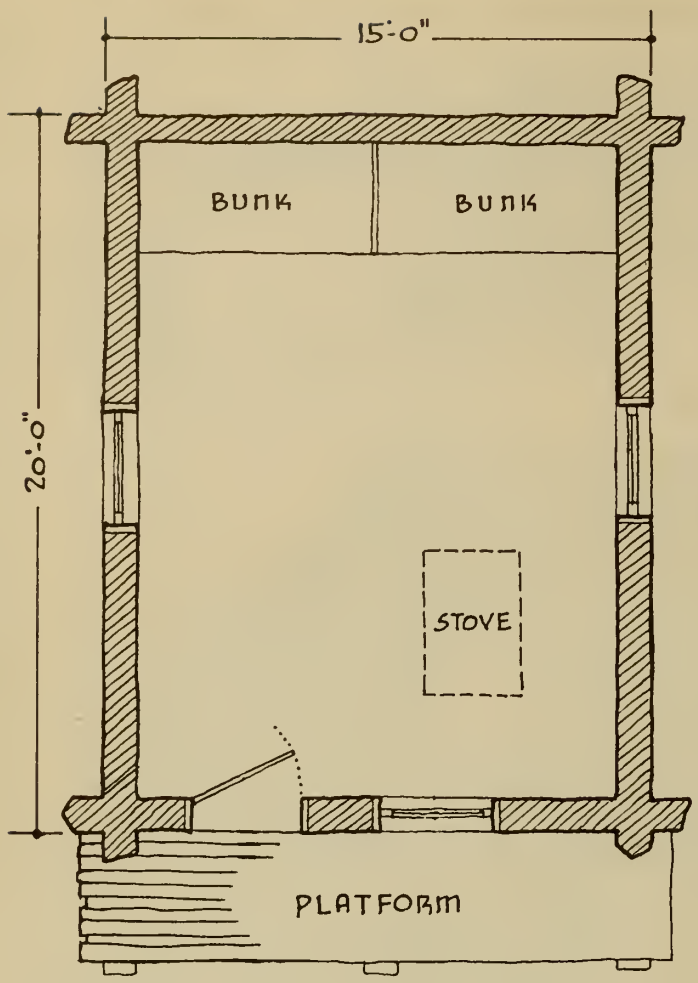
In commonplace cabins the exterior is often left unfinished, the bricks themselves forming the surface, but it is always better to finish the walls, for which a one-inch layer of stucco is used, with chicken wire of one-inch mesh first attached to the bricks. The plaster of the inside walls is again one inch thick and is applied directly to the adobe.

CHAPTER VII

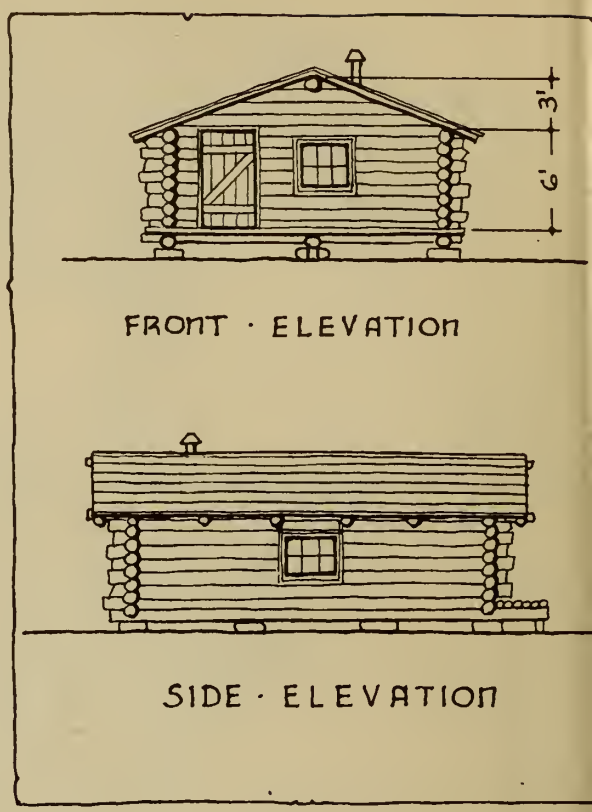
PLANS FOR CABINS, COTTAGES, AND SUMMER HOMES



KNOWN AND LOVED by all who frequent Northeastern wildwood trails and waterways, the open-sided Adirondack log leanto is designed to offer little more than night shelter in the woods, but thanks to the outside reflector fire it does this with exceeding warmth and congeniality. A generous log across the front provides the "deacon's seat". As an out-camp it has much to recommend it. A front wall added, with door and window, and a tiny stove within, makes of it a miniature cabin.

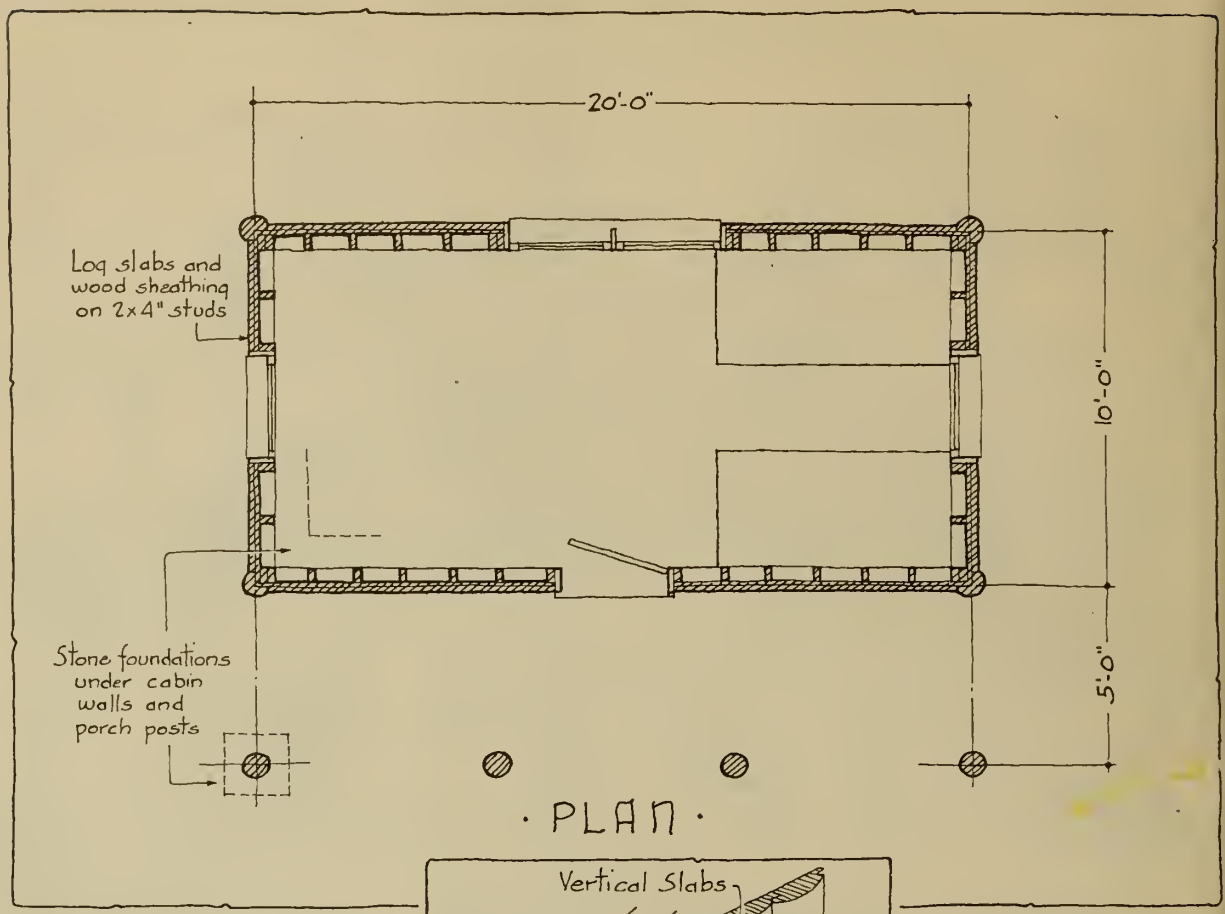


• PLAN •

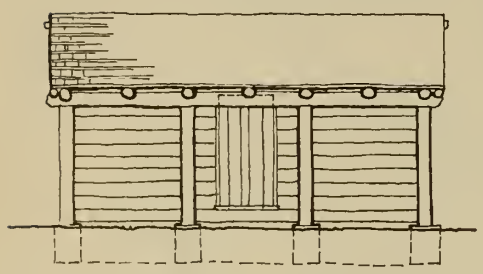


So long and so intimately has this simple hunter's cabin been a part of the Northwoods that it is as expected a sight as the towering pines and trembling aspens. It speaks of hardened silent men, beyond the pale of luxury. Those most at home in wilderness find in this simplicity a fully adequate and appropriate dwelling for the far wild places.

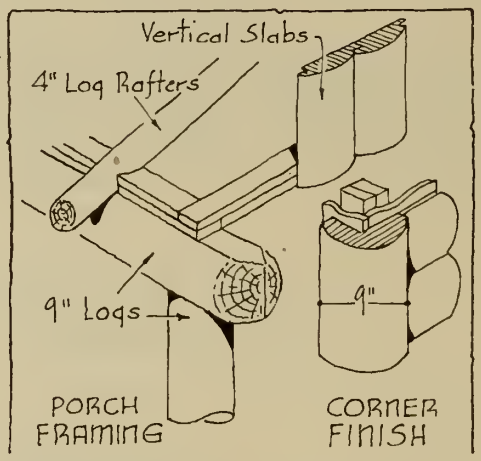
Box-like and of logs, it makes no effort at adornment but settles quietly into the wildwood scene. Often the pole rafters from side plates to ridge are replaced by lengthwise ones, purlin style, tied into the gables. If close enough together, long shakes can then cover the roof without the need of roof boards beneath.



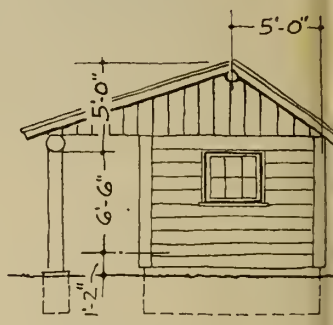
· PLAN ·



· FRONT · ELEVATION

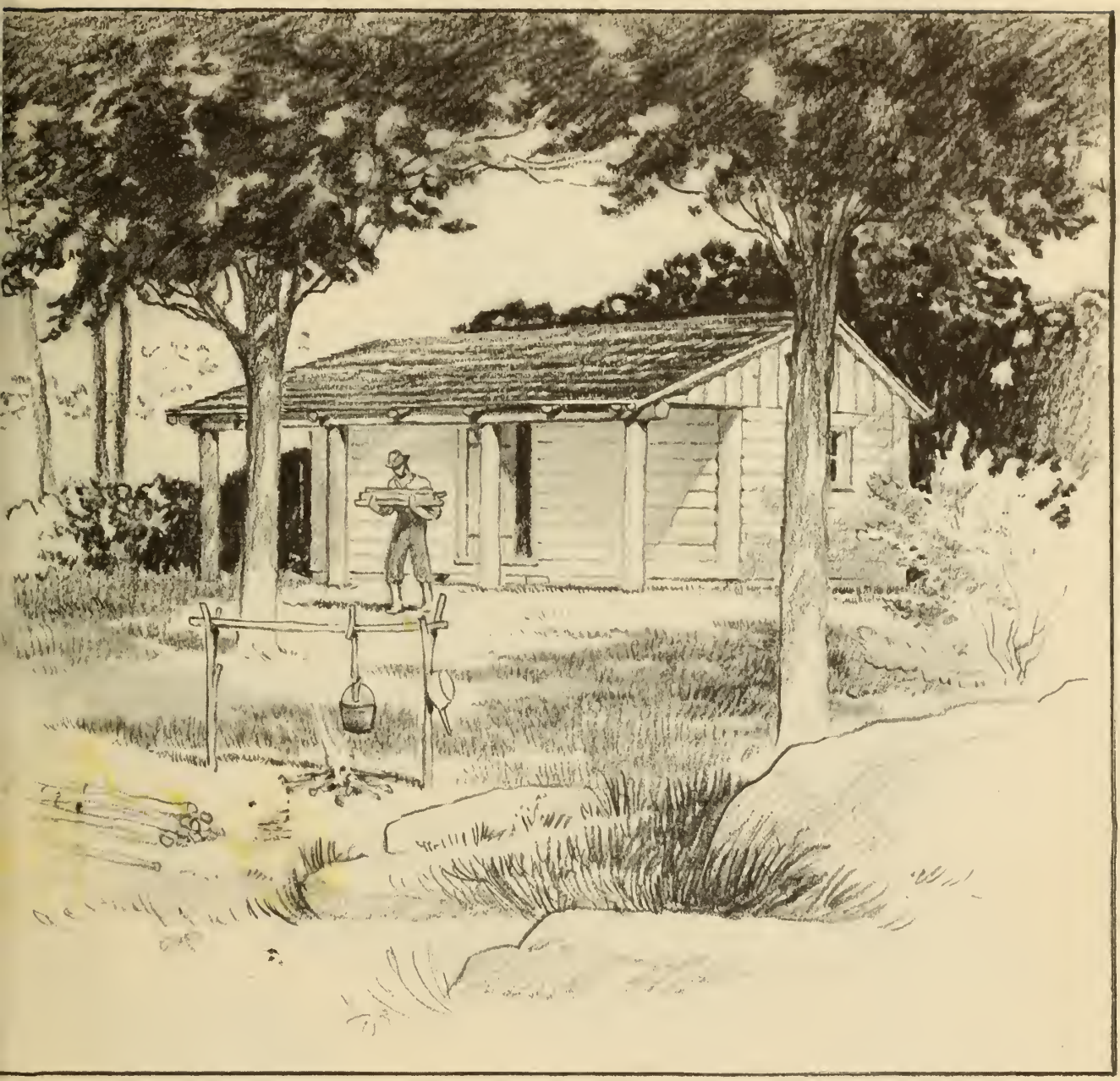


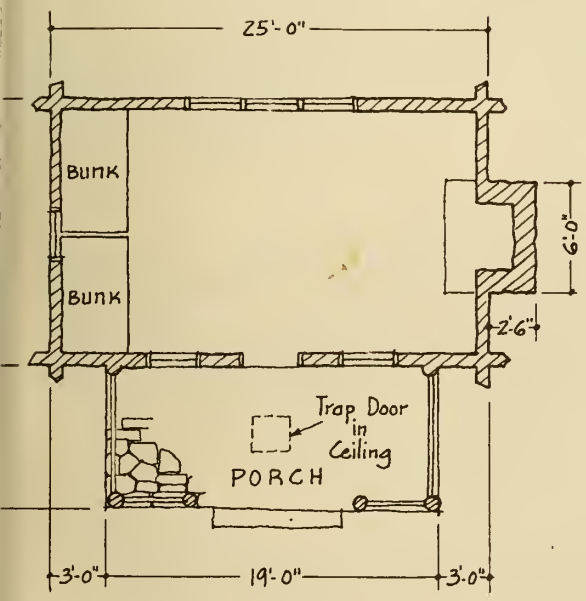
CONSTRUCTION · DETAILS



· SIDE · ELEVATION

3 1/4 1





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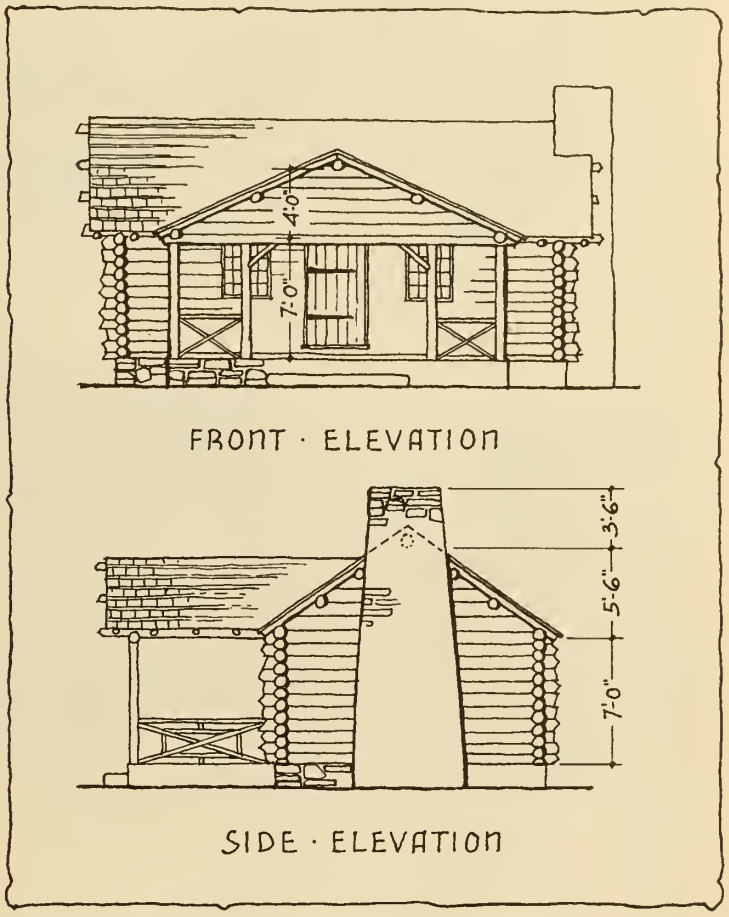
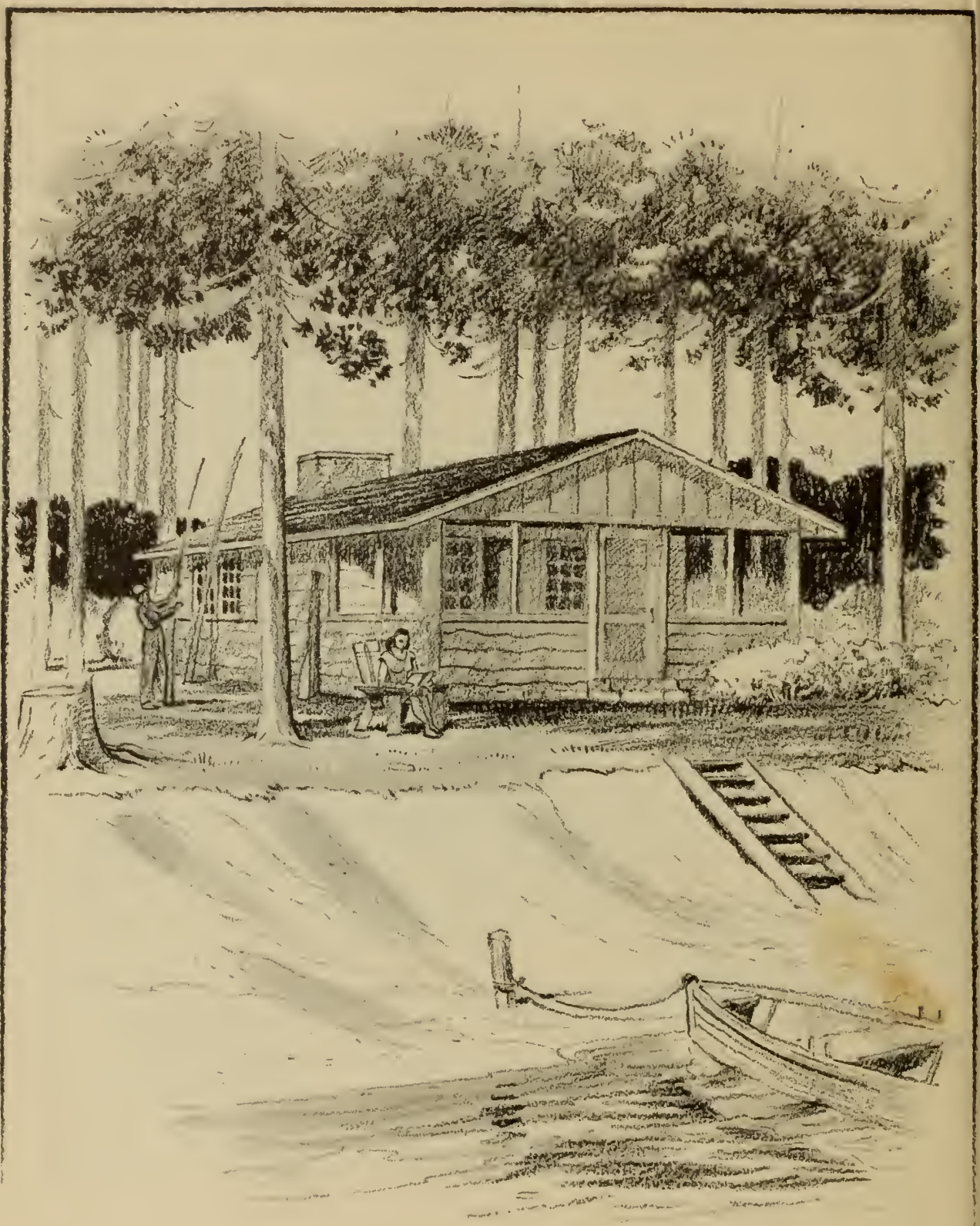
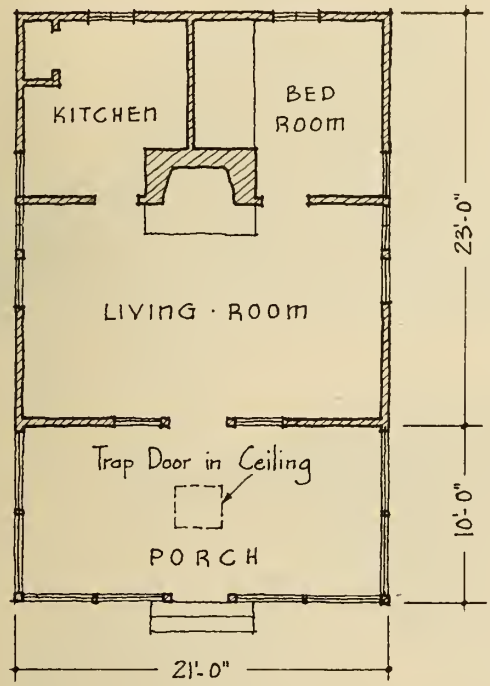


THE SIMPLE hunter-style cabin takes on a very different aspect with the addition of the side porch extension shown in this plan. Lumber may replace logs in this type of structure if desired, to adapt it to a rural or a resort, rather than a wilderness, setting. A trap door in the porch ceiling provides convenient storage space. By replacing the railing of the porch with a solid parapet, the porch can be screened to provide additional sleeping quarters.





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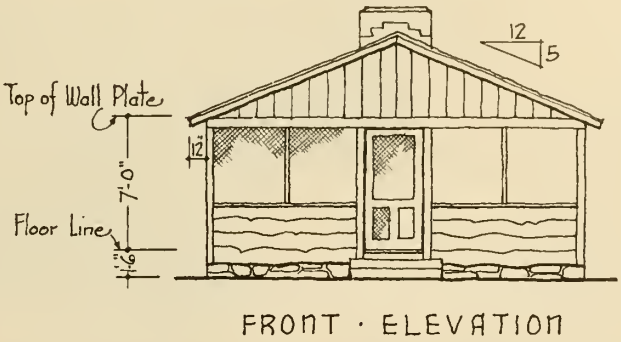
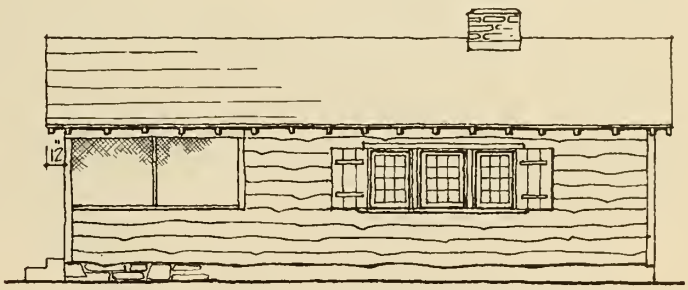
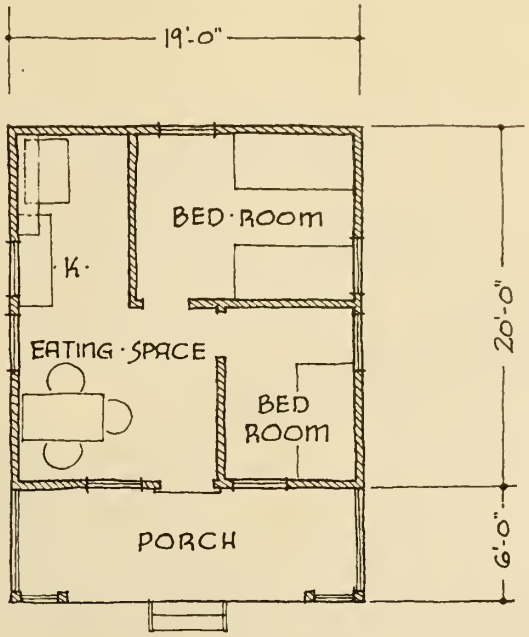


FRONT · ELEVATION



SIDE · ELEVATION

THE WAVERING LINES of waney-edged siding lends to this cottage its peculiar charm of informality and rusticity. Vertical board-and-batten gables blend agreeably. As to plan, the cottage indicates again how the box-like hunter's cabin of the earlier plates can be made more commodious and appealing by a porch extension, and more livable by interior arrangements. Although shown here as a frame building with waney siding, this plan will lend itself to any of the usual construction materials.



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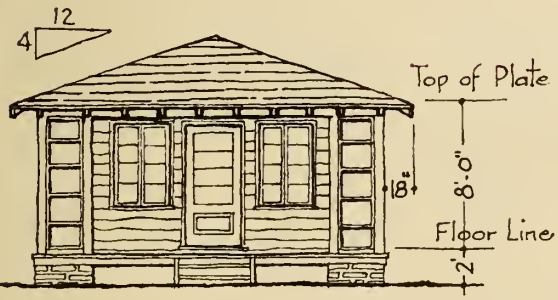
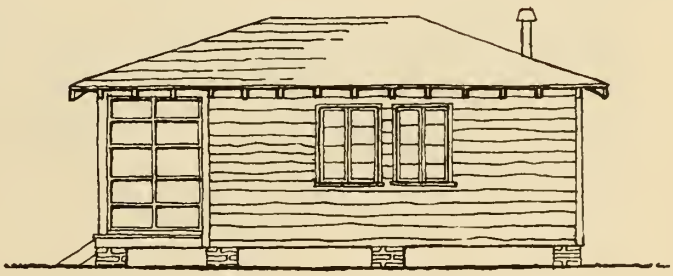


FRONT ELEVATION



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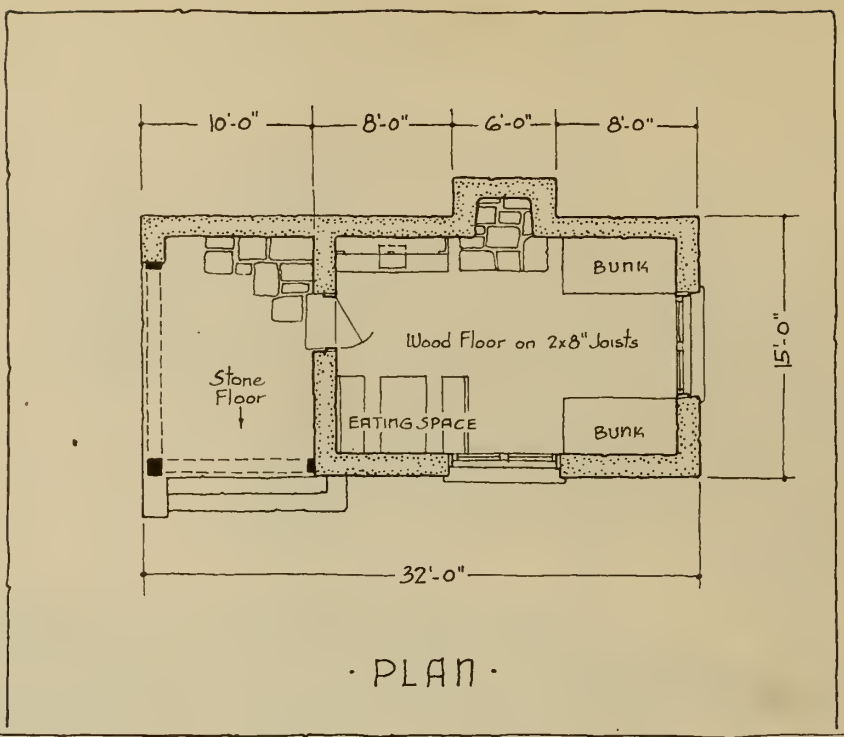
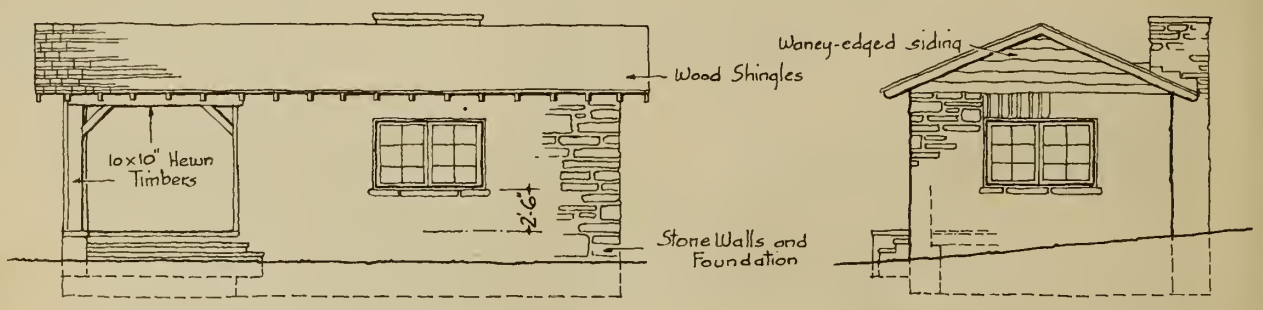
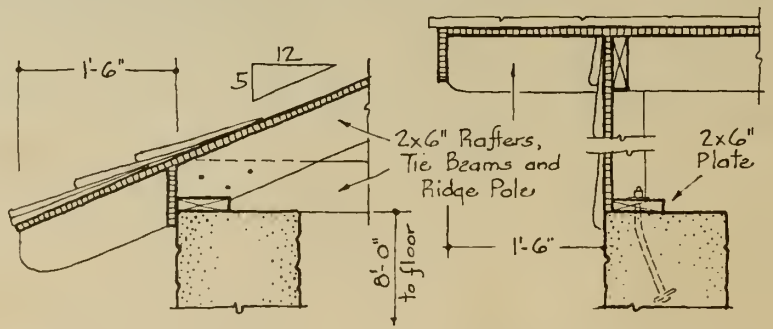


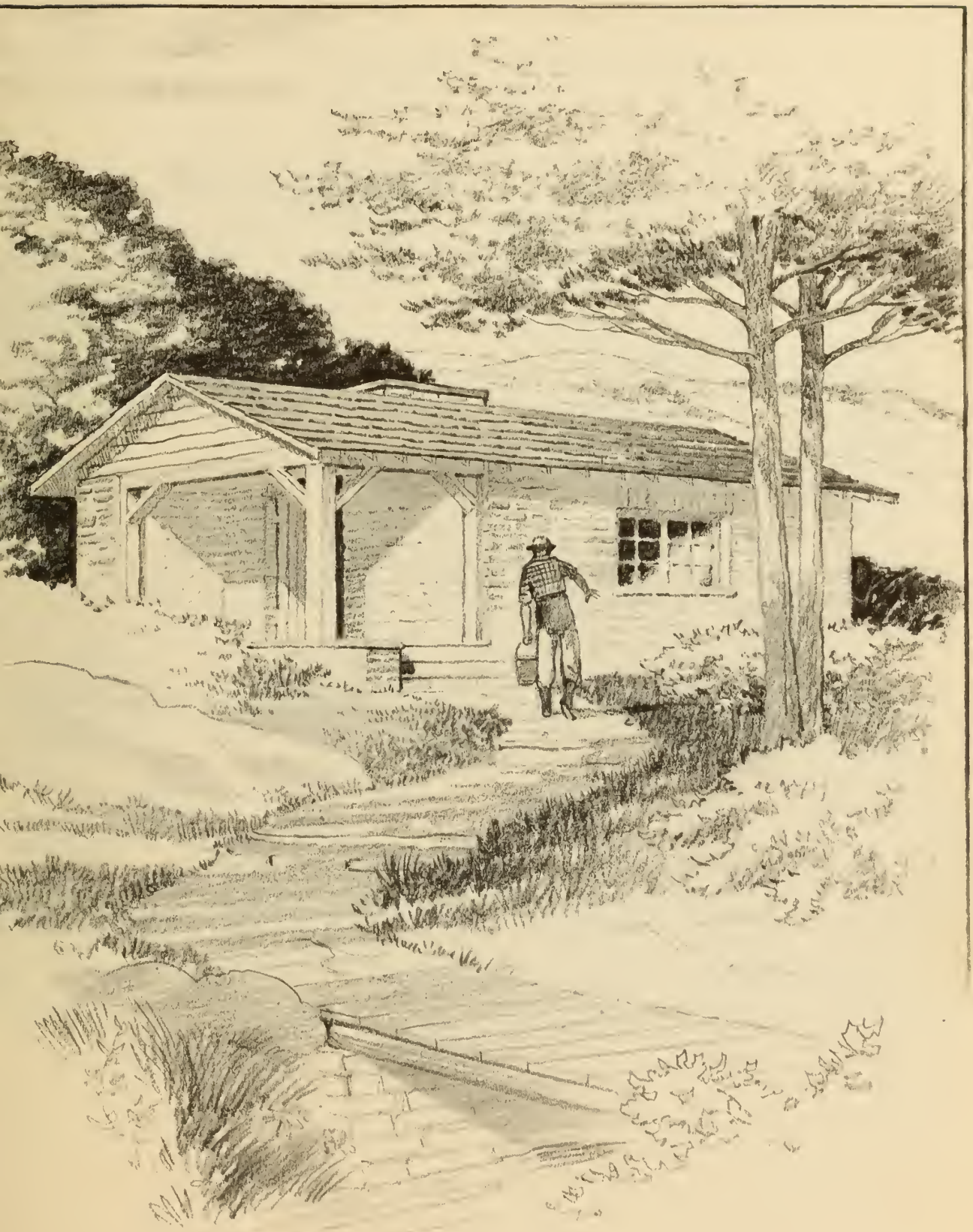
· PLAN ·

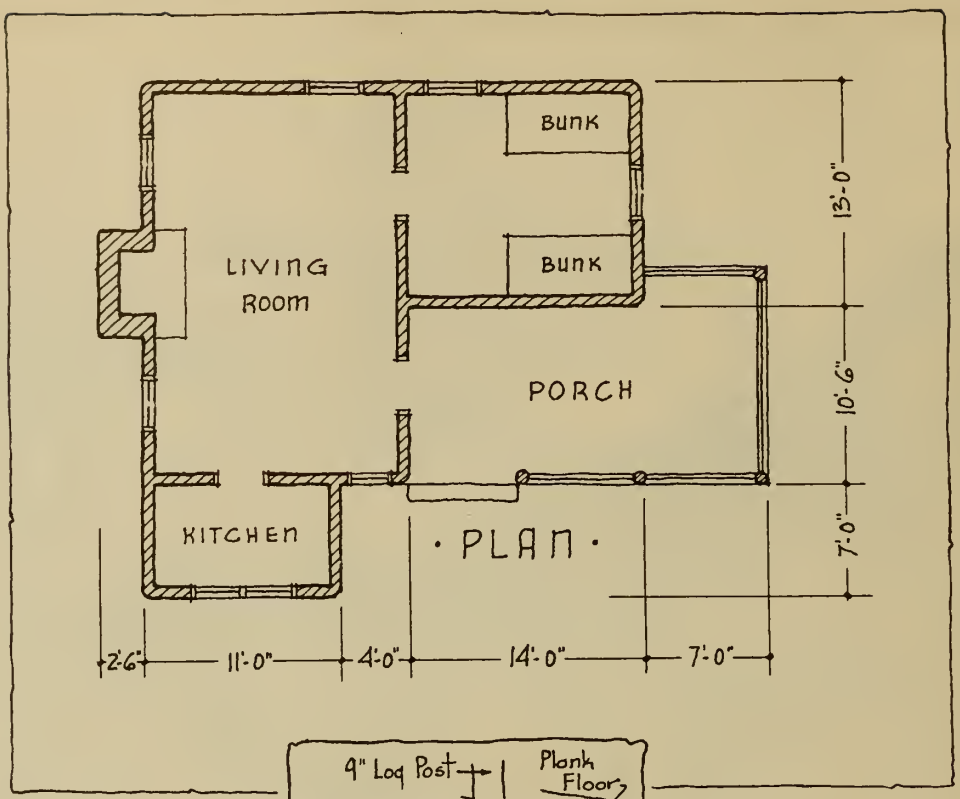


· FRONT · ELEVATION · · SIDE · ELEVATION ·



EAVE · SECTION GABLE-END · DETAIL





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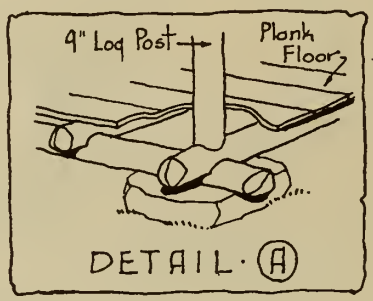
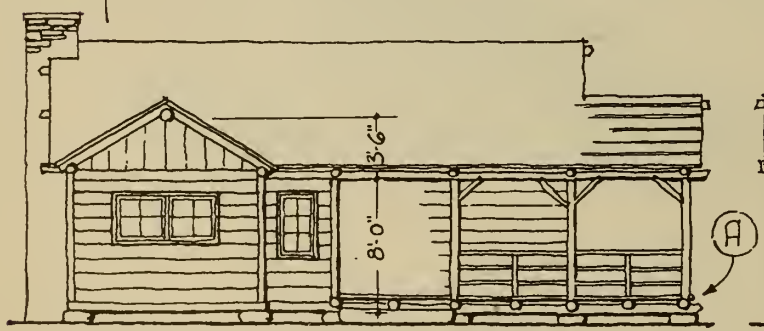


DETAIL · (A)



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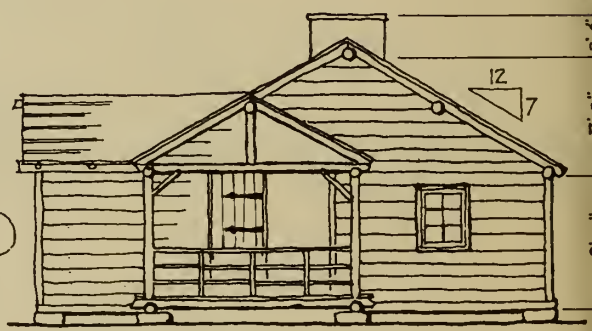

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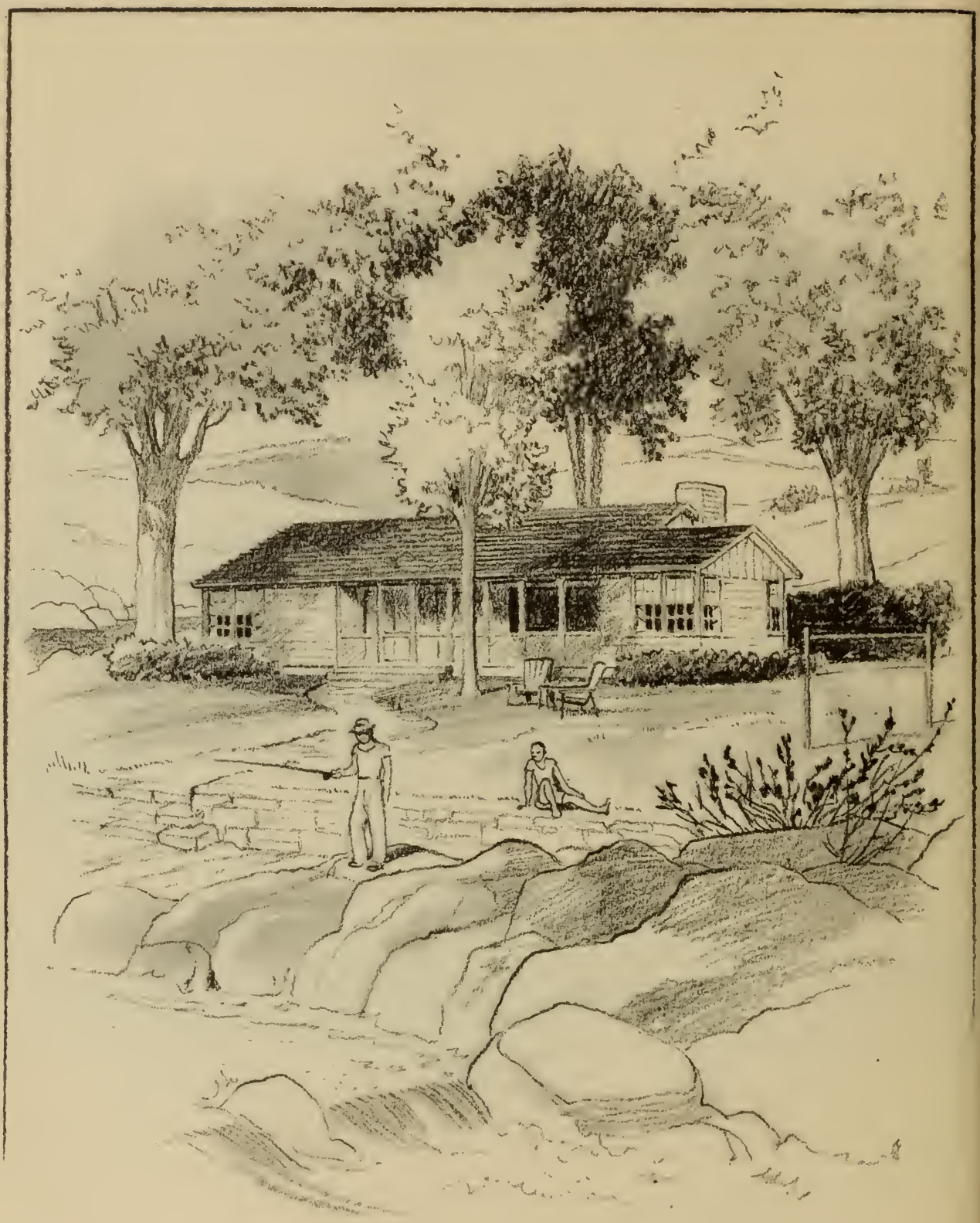
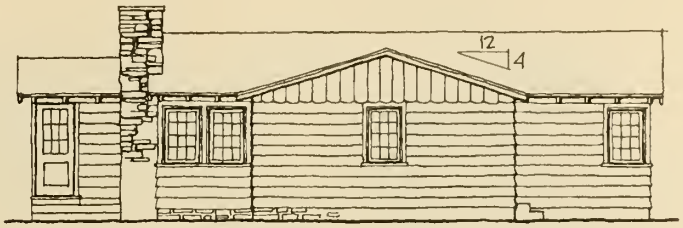
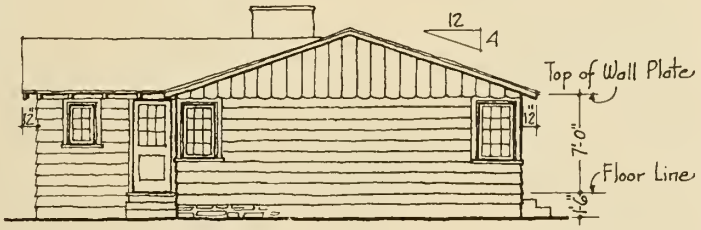
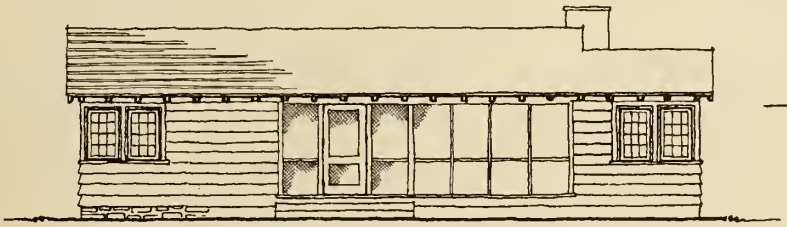




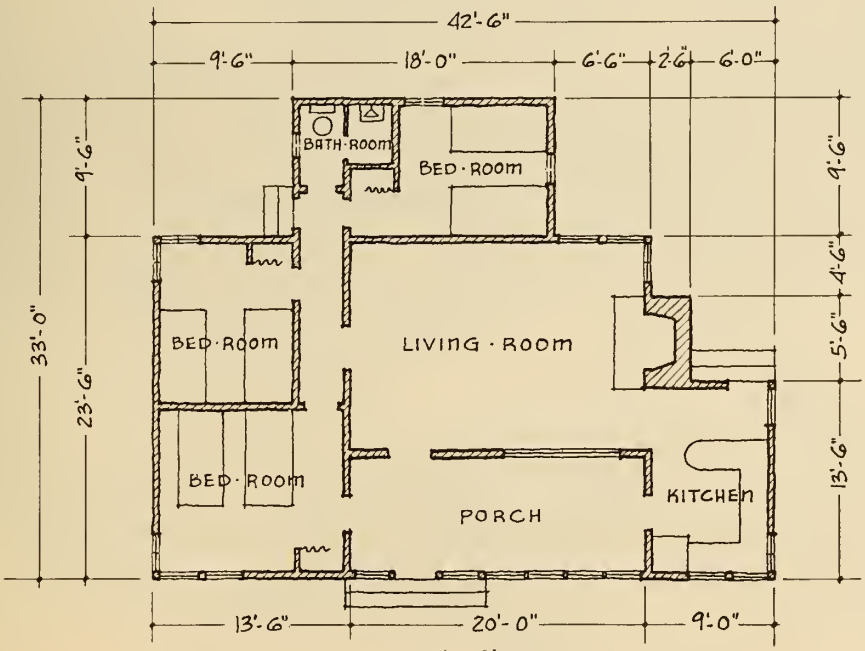
REAR · ELEVATION



SIDE · ELEVATION



FRONT · ELEVATION



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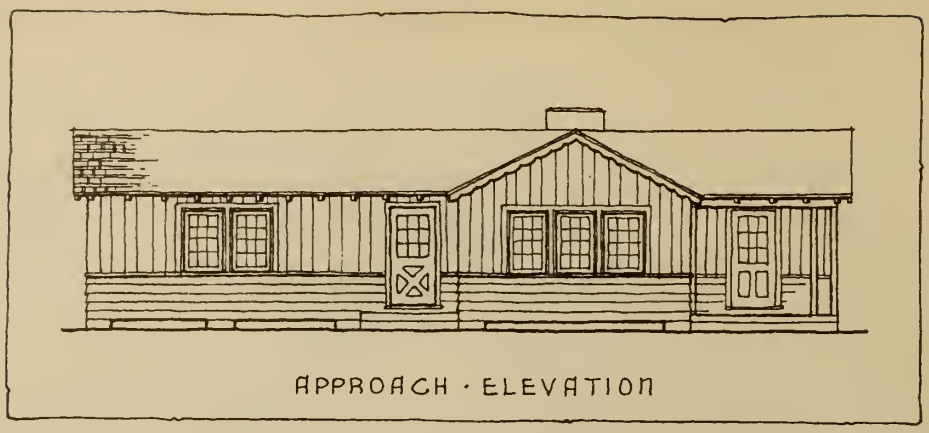
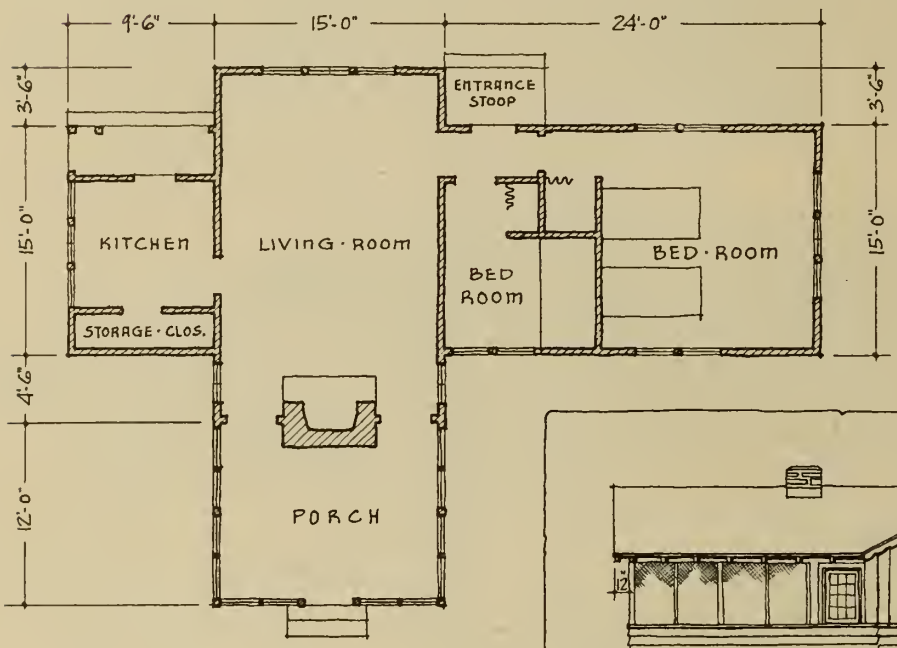


APPROACH · ELEVATION



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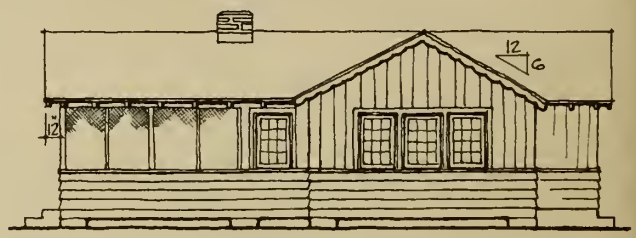
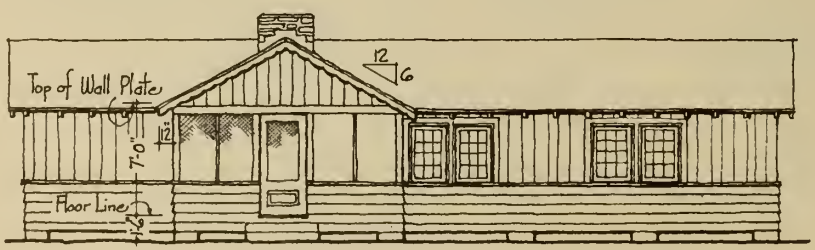
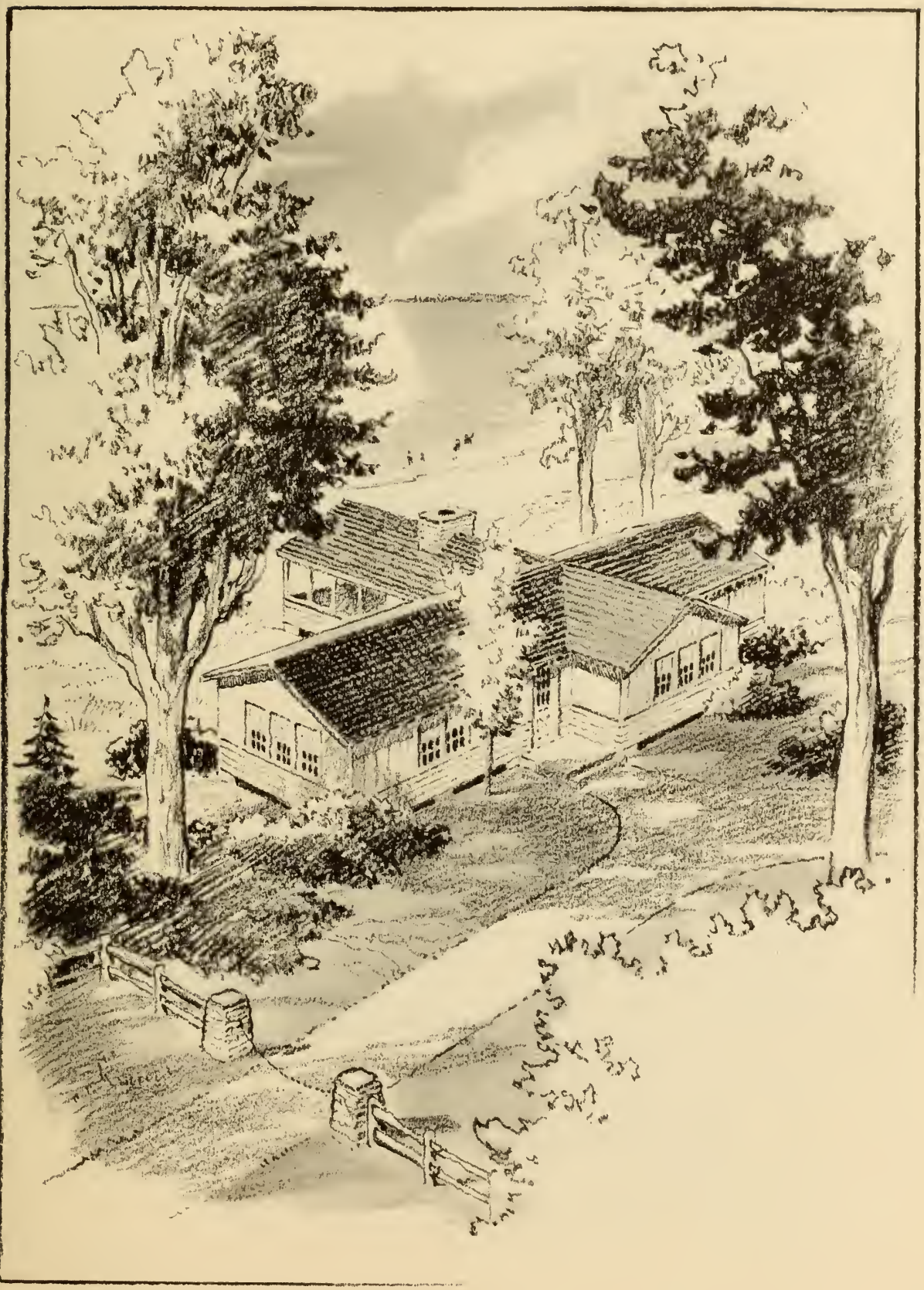
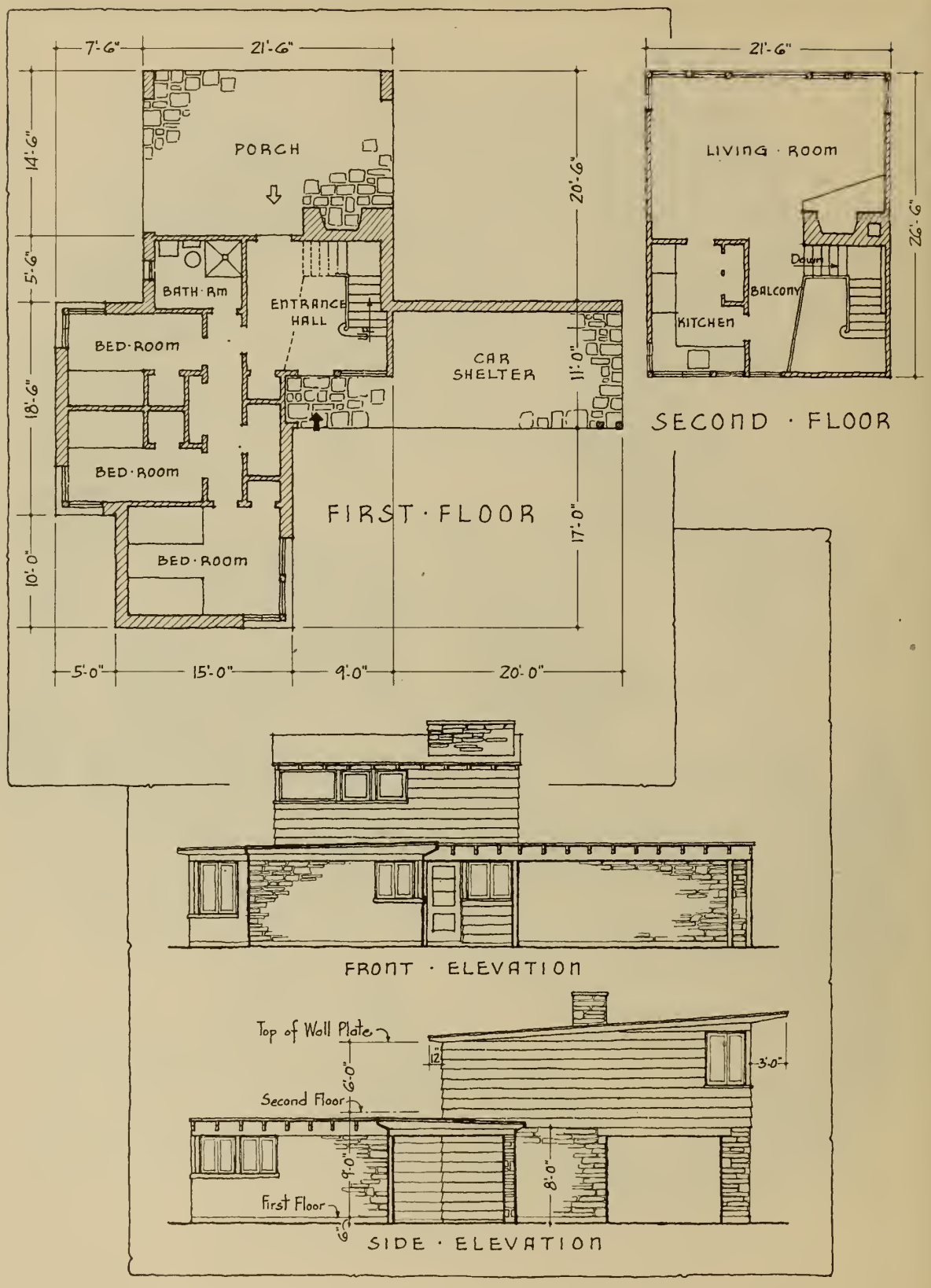


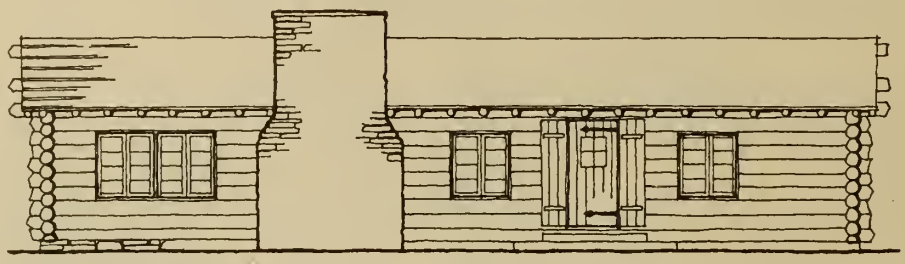
SIDE · ELEVATION



LAKE · ELEVATION




7'-6"
21'-6"
14'-6"
5'-6"
18'-6"
10'-0"
20'-6"
11'-0"
17'-0"
5'-0"
15'-0"
9'-0"
20'-0"
PORCH
BATH·Rm
ENTRANCE HALL
BED·ROOM
BED·ROOM
BED·ROOM
CAR SHELTER
FIRST·FLOOR
21'-6"
26'-6"
LIVING·ROOM
Down
BALCONY
KITCHEN
SECOND·FLOOR
FRONT·ELEVATION
Top of Wall Plate
12"
6'-0"
3'-0"
Second Floor
9'-0"
8'-0"
First Floor
6"
SIDE·ELEVATION



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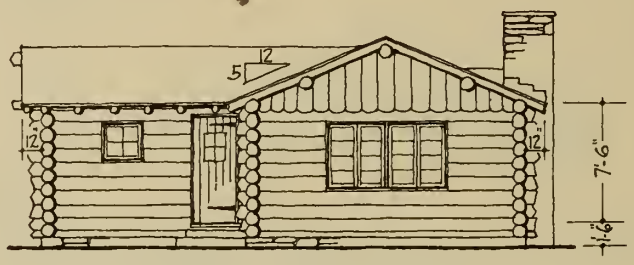
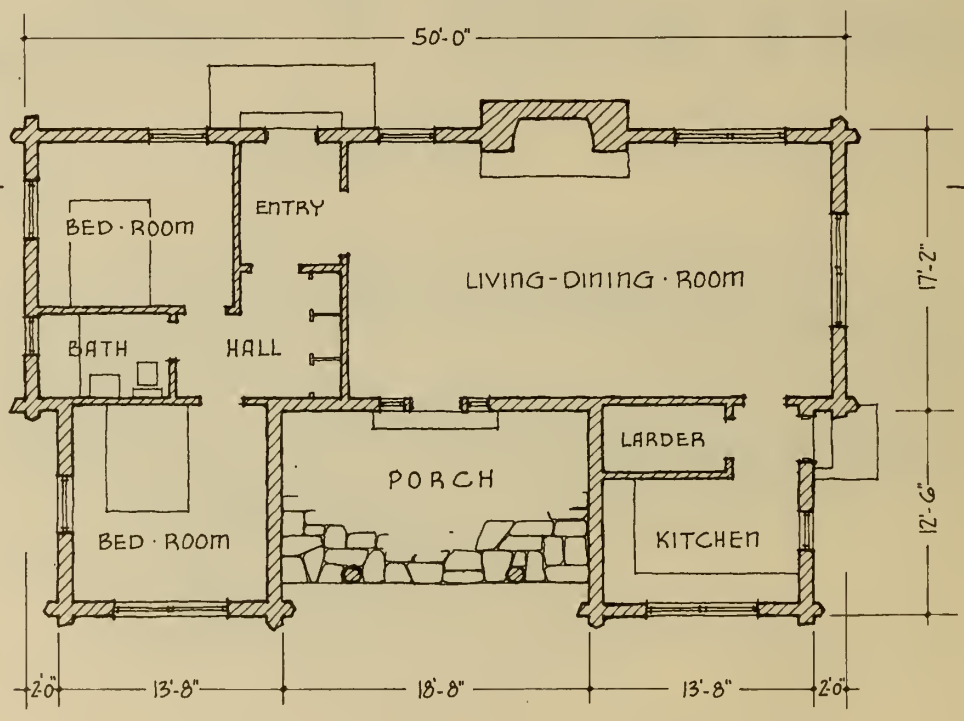


SIDE · ELEVATION



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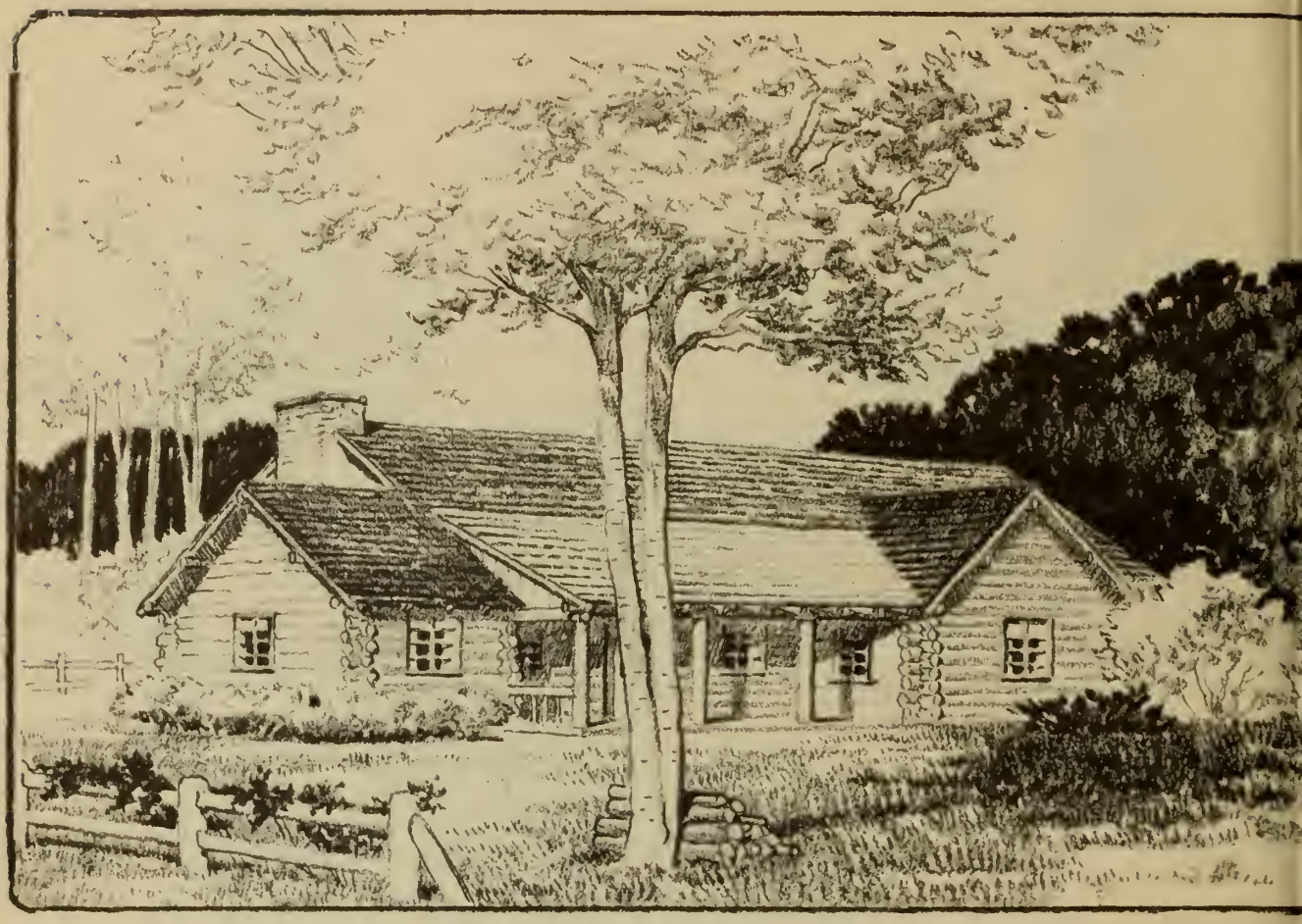
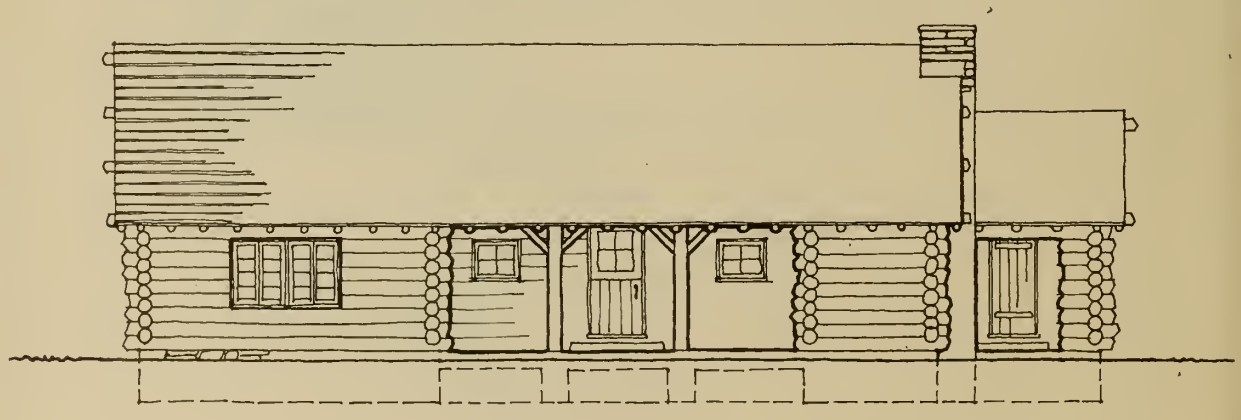
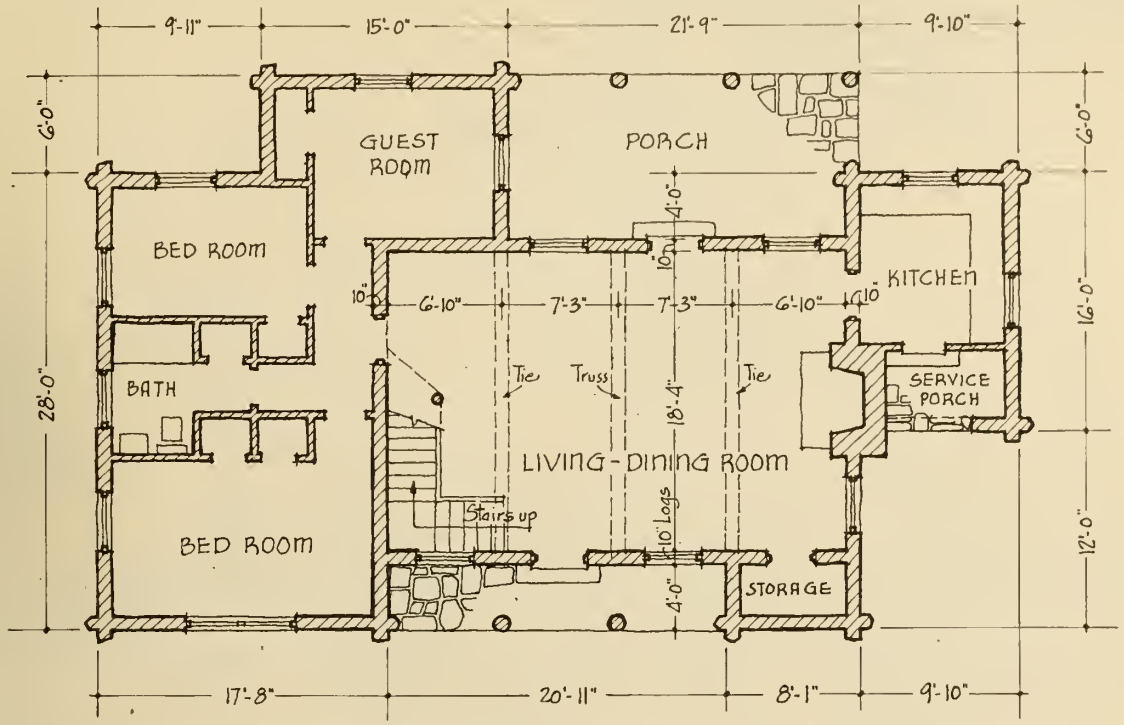
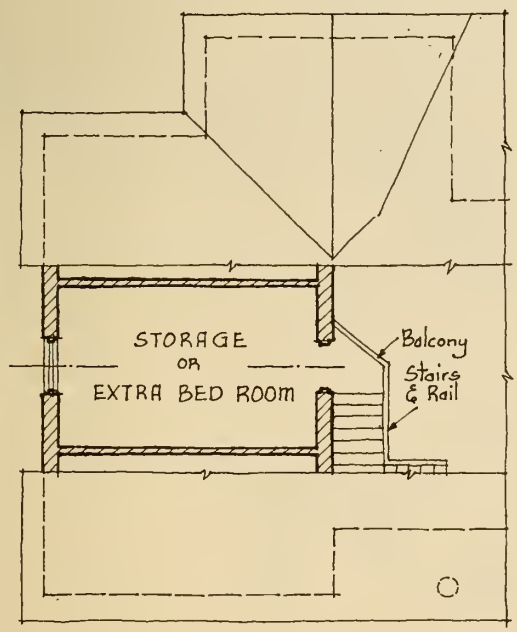




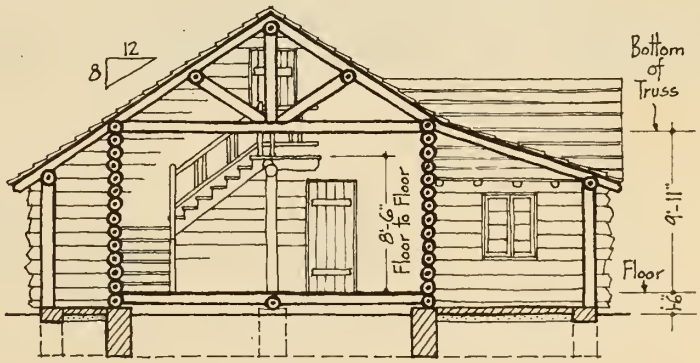
·ELEVATION·



FIRST · FLOOR



SECOND · FLOOR



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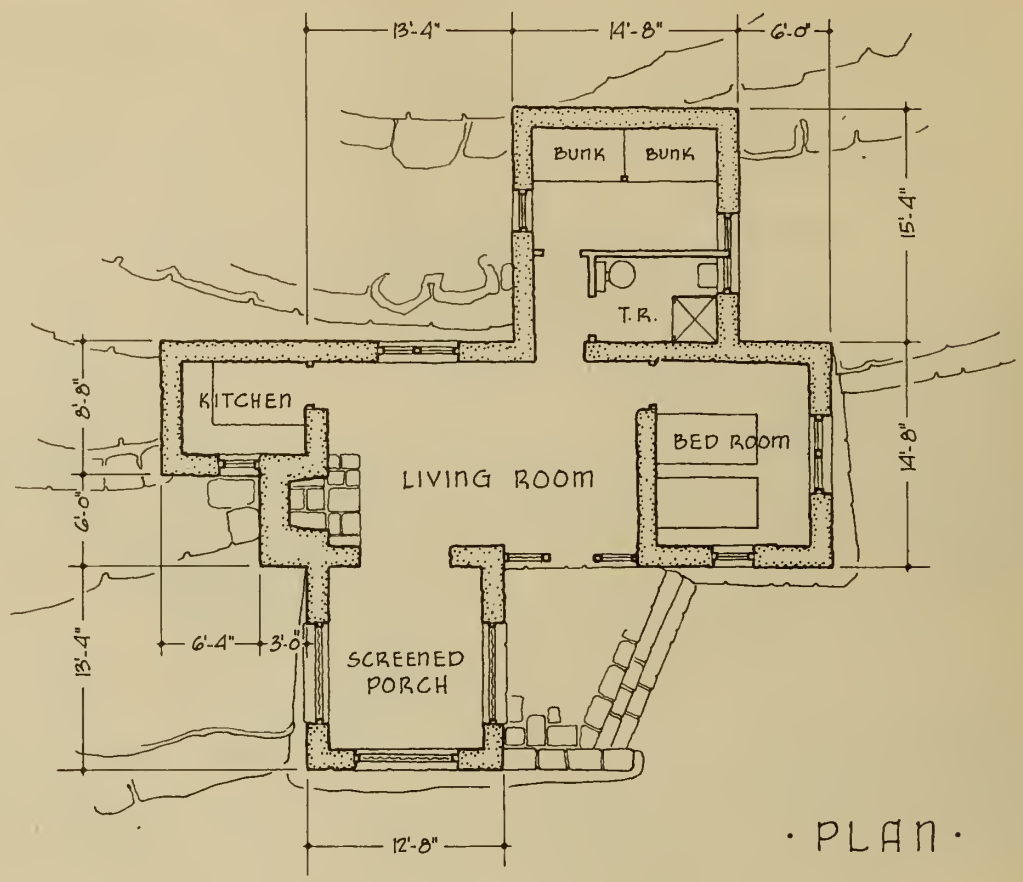

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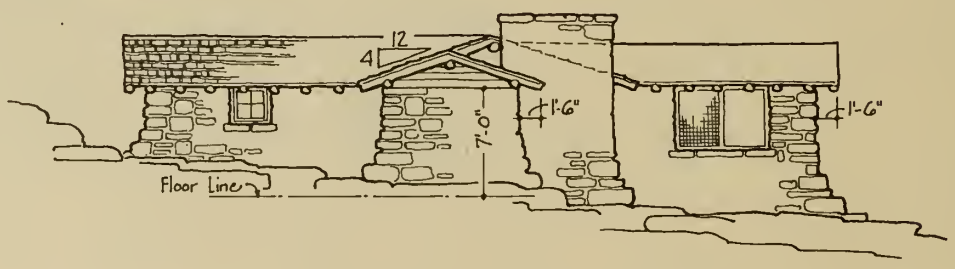
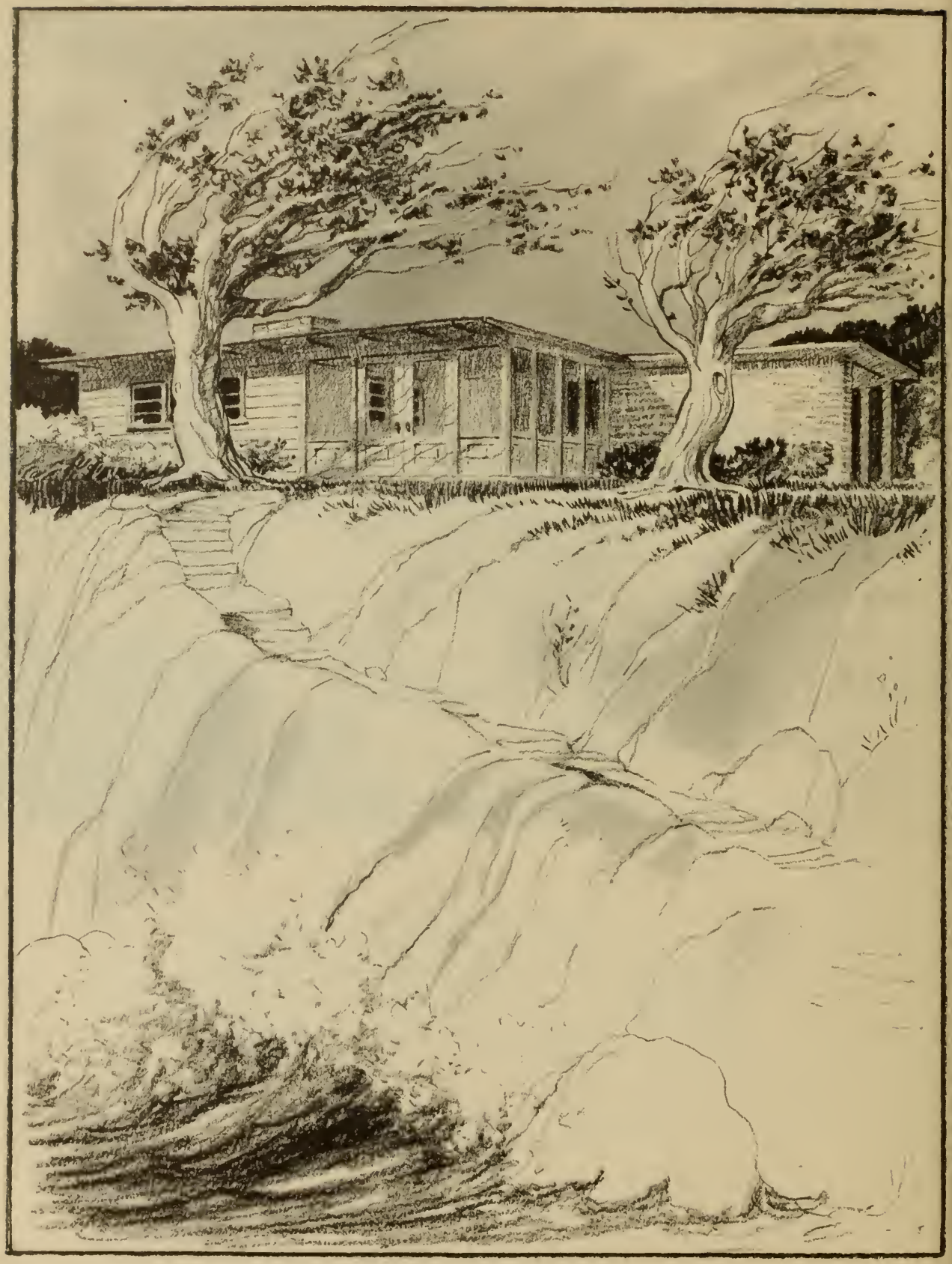
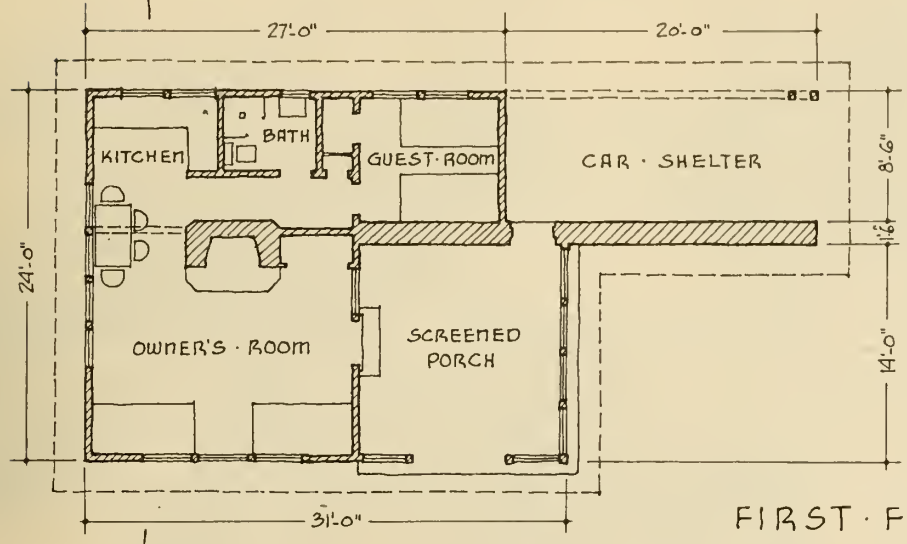
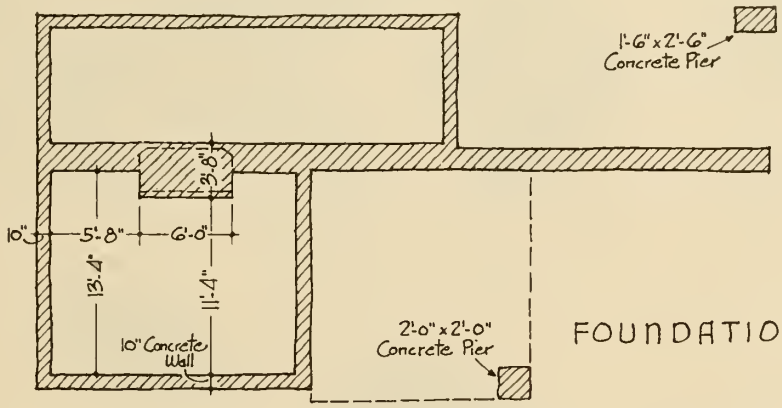


SIDE · ELEVATION

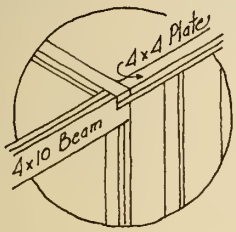




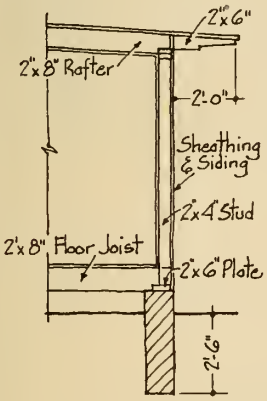
FIRST · FLOOR



FOUNDATION

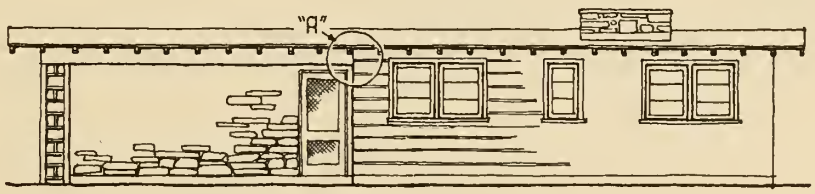


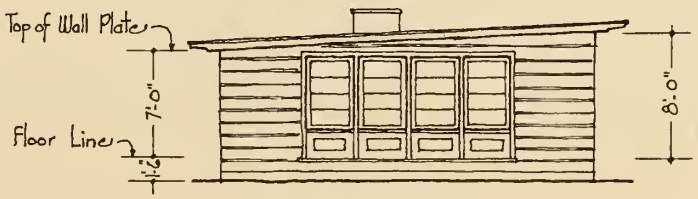
DETAIL · AT · "A"



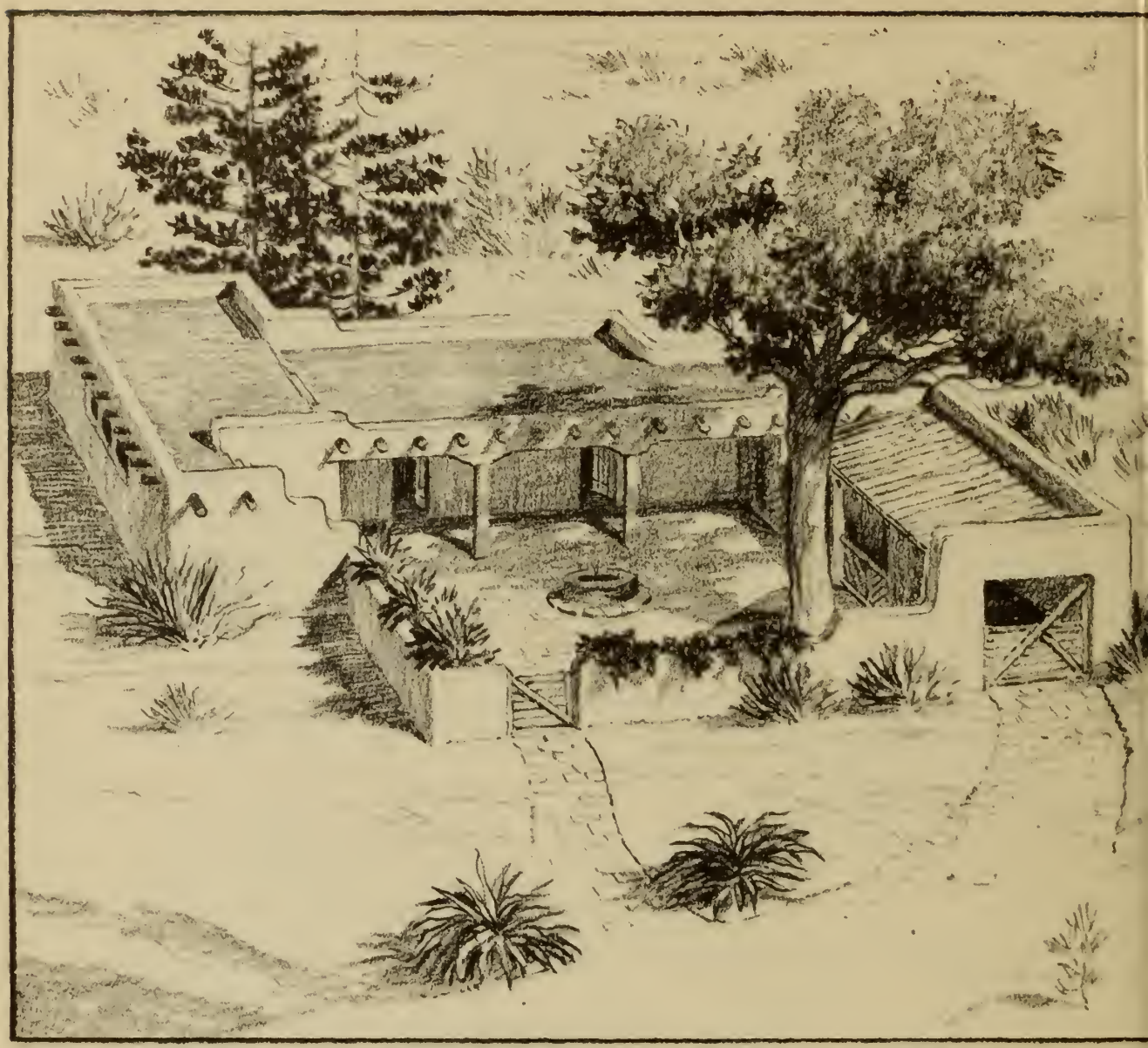
TYPICAL WALL · SECTION

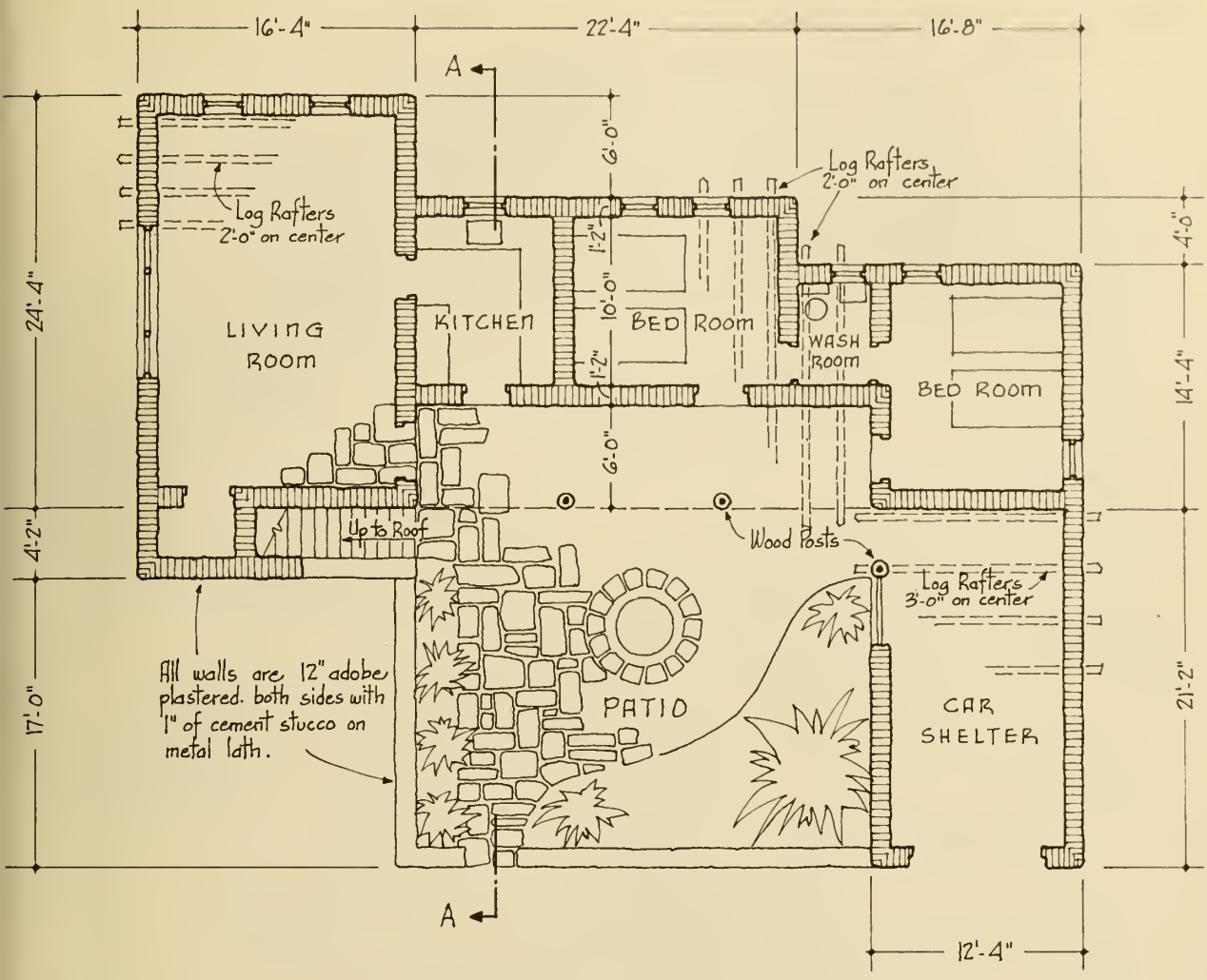
· DETAILS ·



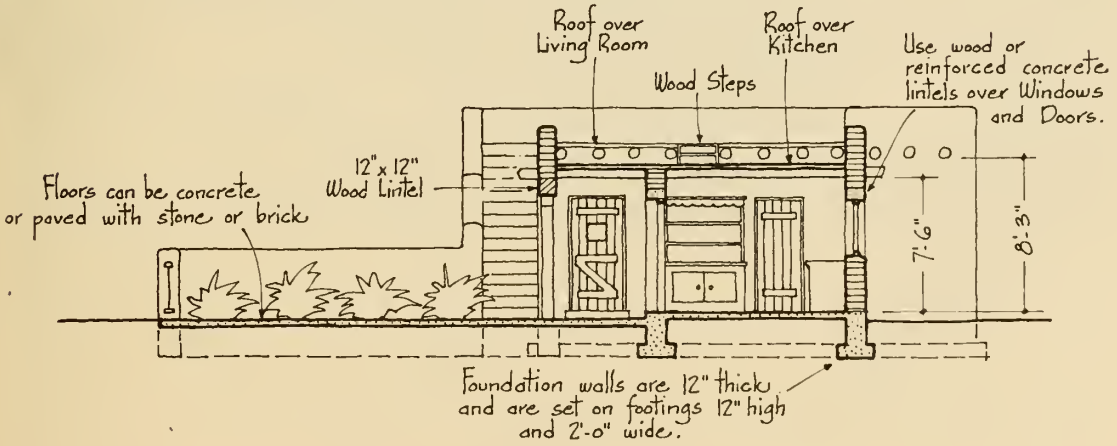


ELEVATIONS

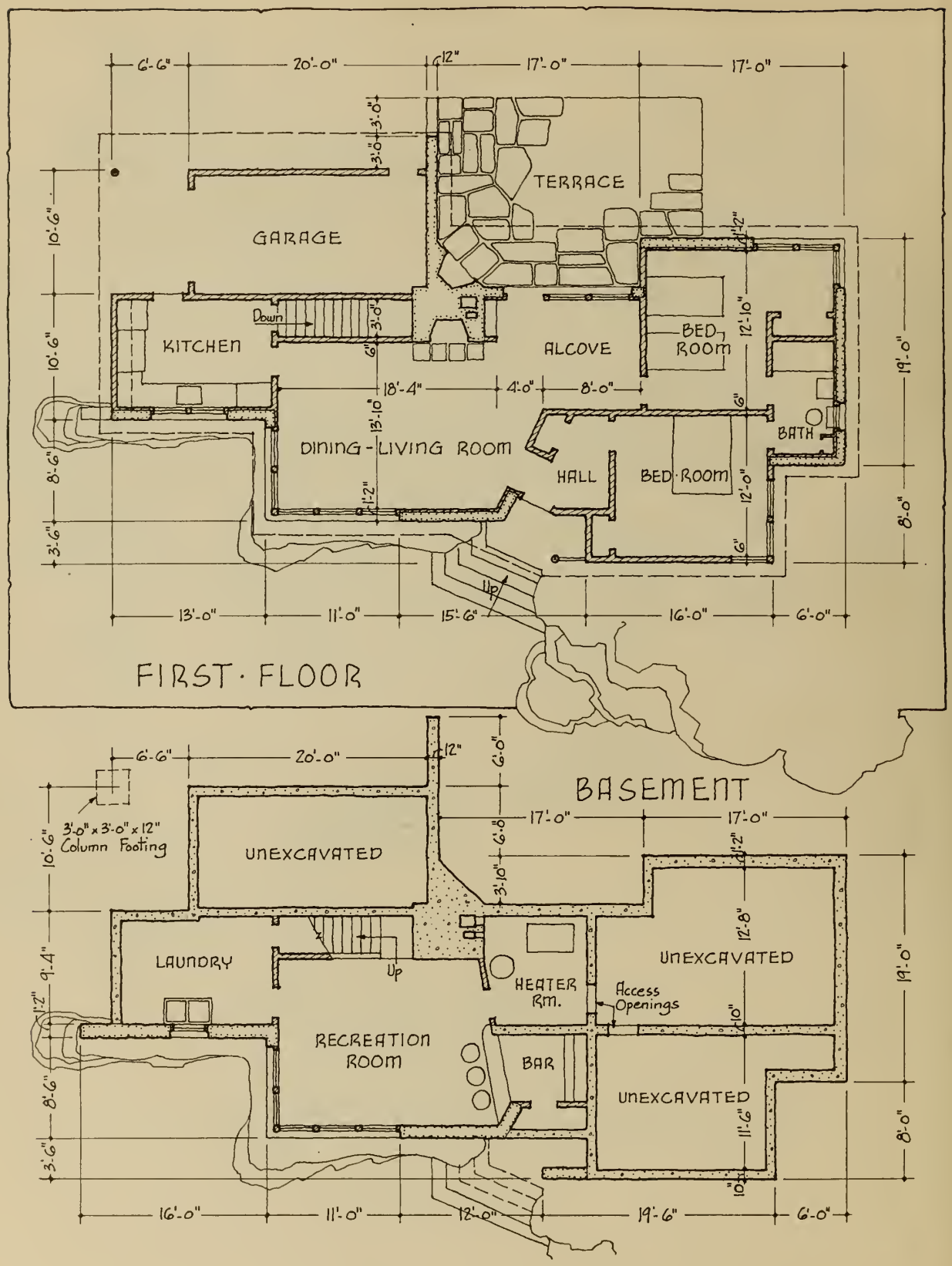


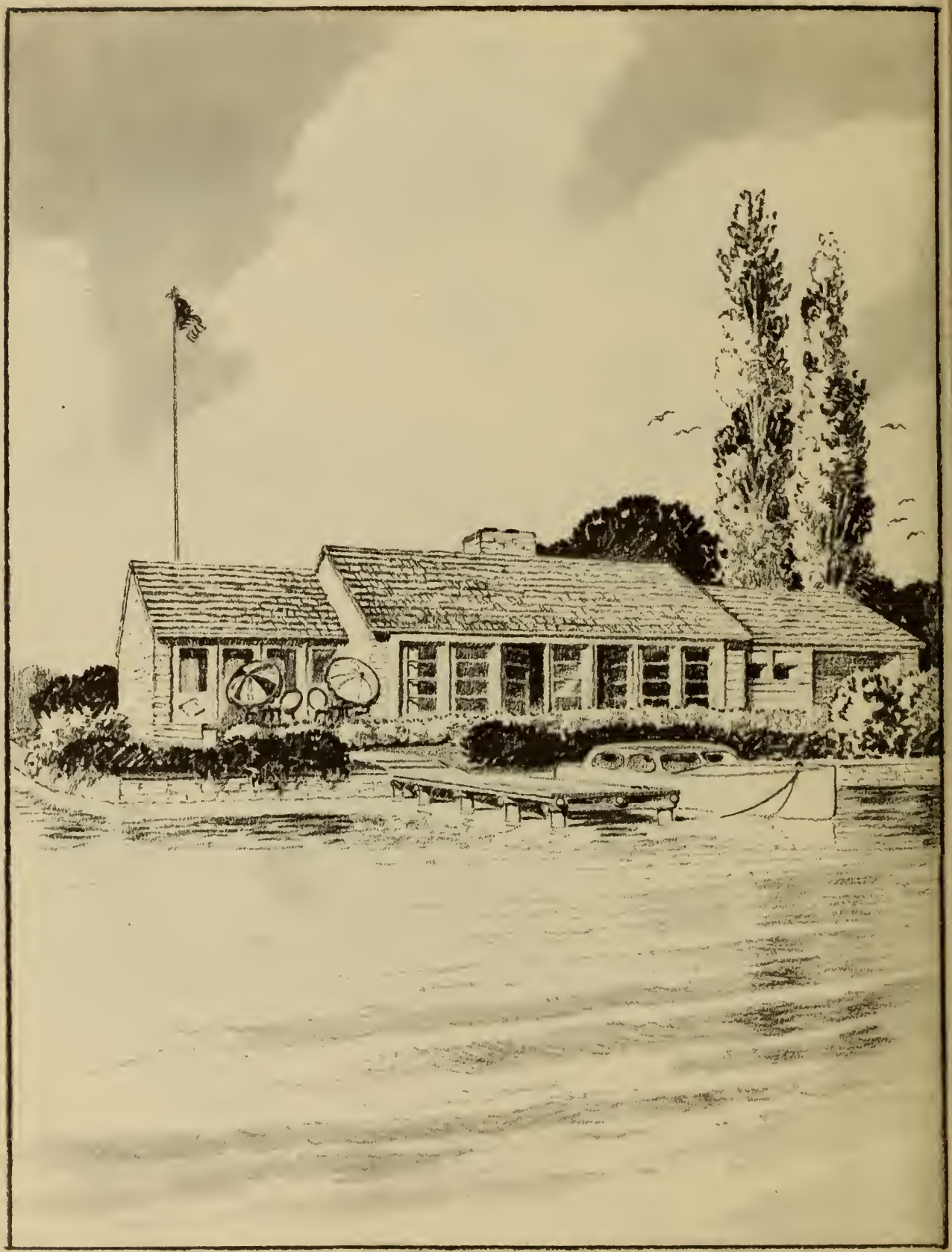


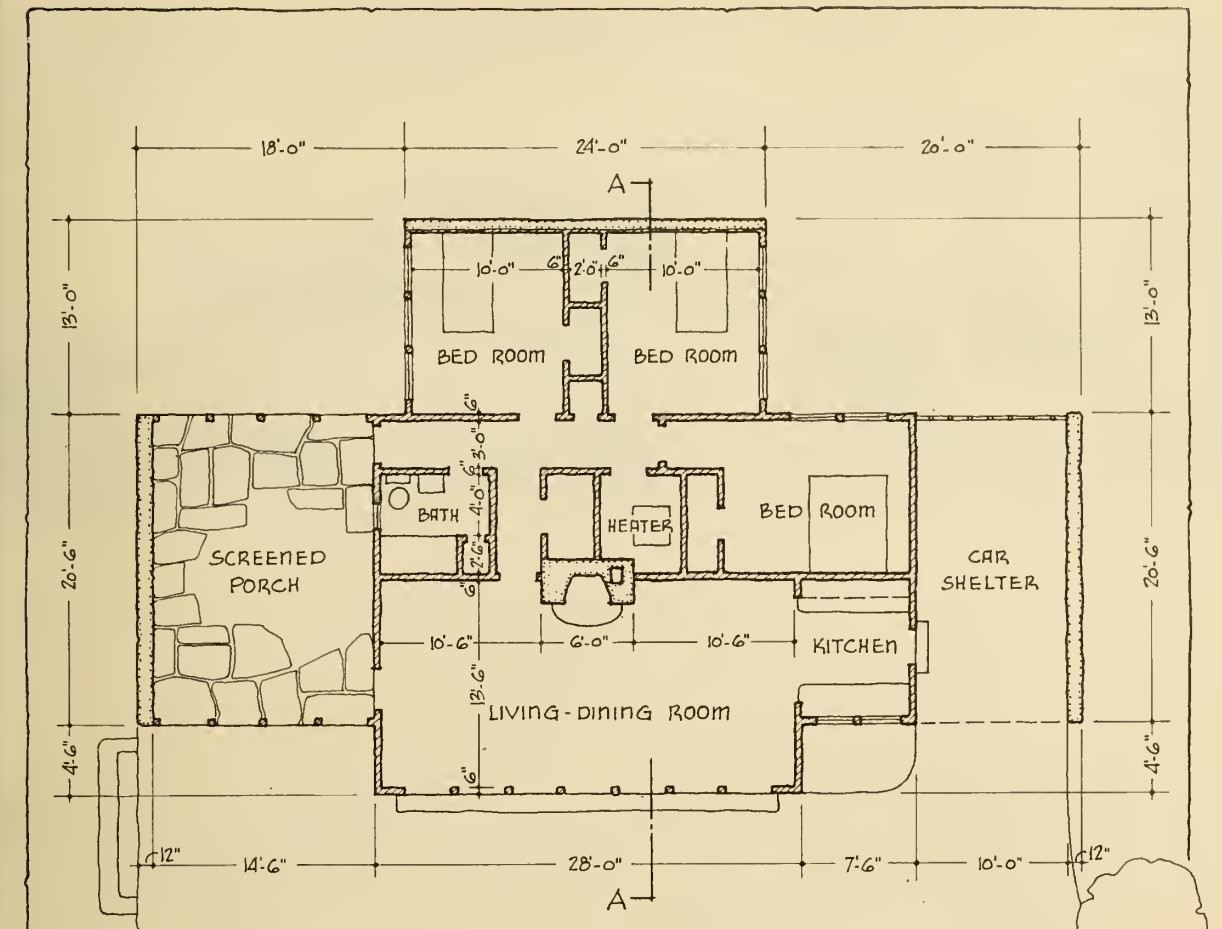
· PLAN ·

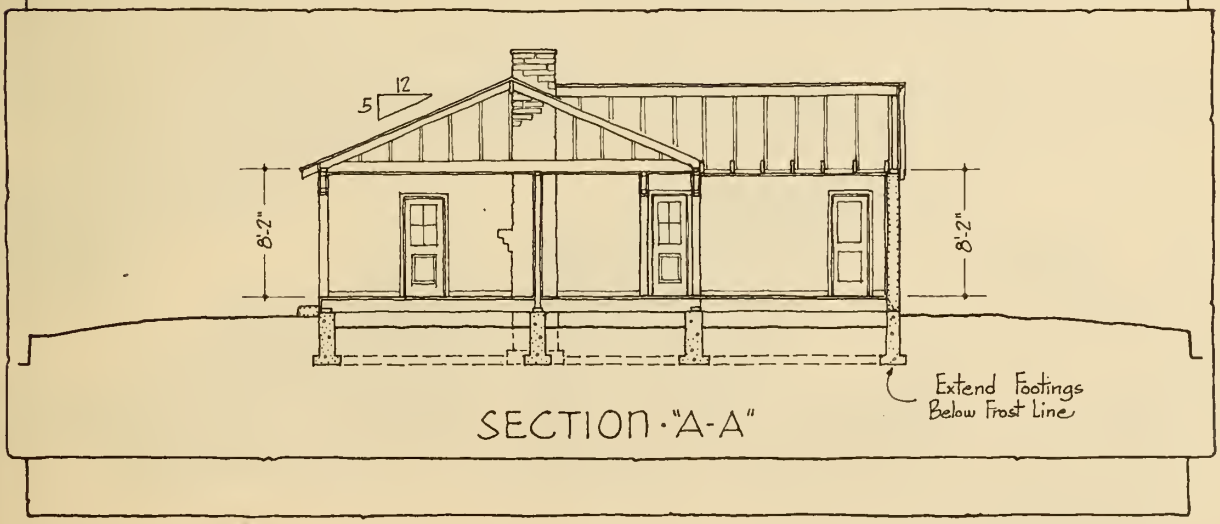

Roof over Living Room
Roof over Kitchen
Wood Steps
Use wood or reinforced concrete lintels over Windows and Doors.
12"x12" Wood Lintel
Floors can be concrete or paved with stone or brick
7'-6"
8'-3"
Foundation walls are 12" thick and are set on footings 12" high and 2'-0" wide.

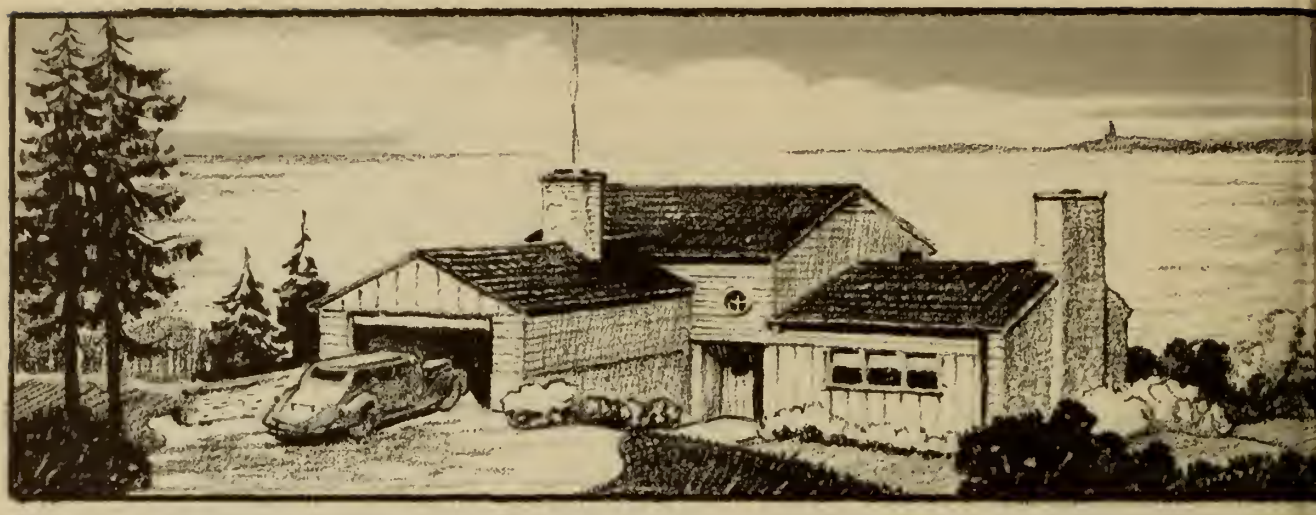
SECTION · "A-A"

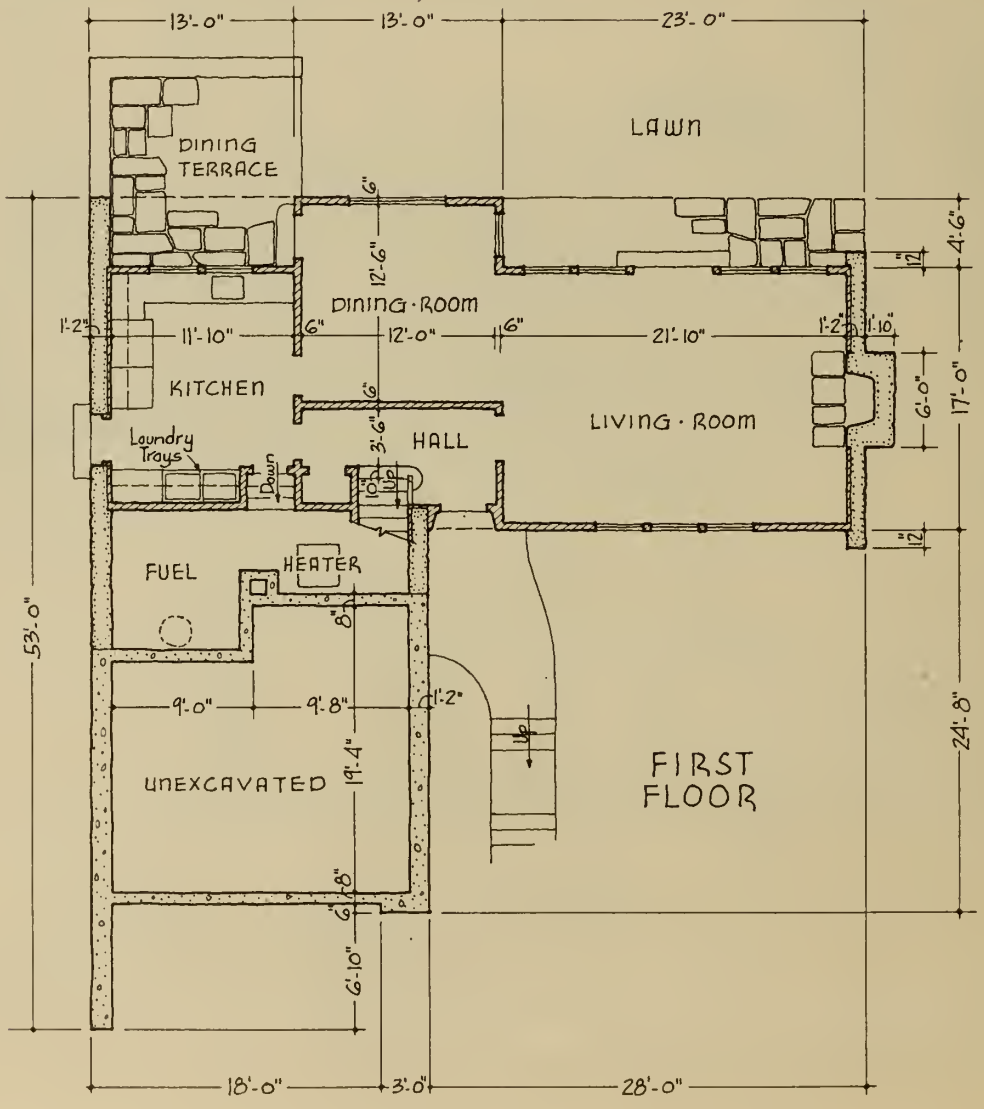

6'-6"
20'-0"
12"
17'-0"
17'-0"
3'-0"
3'-0"
TERRACE
GARAGE
10'-6"
10'-6"
Down
3'-0"
KITCHEN
ALCOVE
BED ROOM
12'-10"
1'-12"
19'-0"
18'-4"
4'-0"
8'-0"
6"
13'-10"
DINING-LIVING ROOM
BATH
8'-6"
HALL
BED ROOM
12'-0"
1'-2"
3'-6"
8'-0"
Up
13'-0"
11'-0"
15'-6"
16'-0"
6'-0"
FIRST · FLOOR
BASEMENT
6'-6"
20'-0"
12"
6'-0"
3'-0" x 3'-0" x 12"
Column Footing
10'-6"
UNEXCAVATED
17'-0"
17'-0"
6'-0"
3'-10"
1'-12"
12'-8"
LAUNDRY
Up
HEATER RM.
UNEXCAVATED
Access Openings
9'-4"
1'-12"
10"
RECREATION ROOM
BAR
UNEXCAVATED
8'-6"
11'-6"
19'-0"
3'-6"
10"
8'-0"
16'-0"
11'-0"
12'-0"
19'-6"
6'-0"

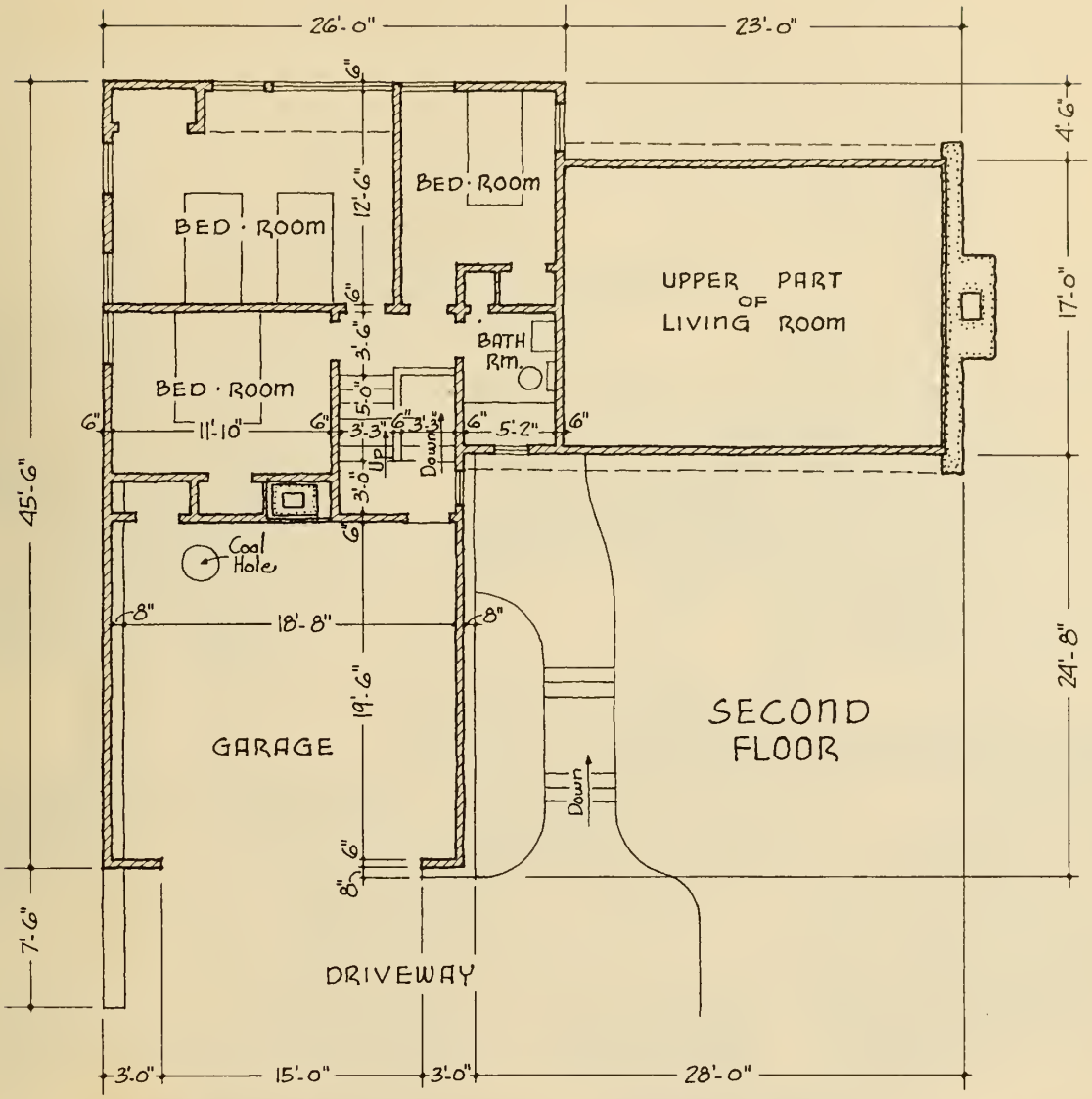


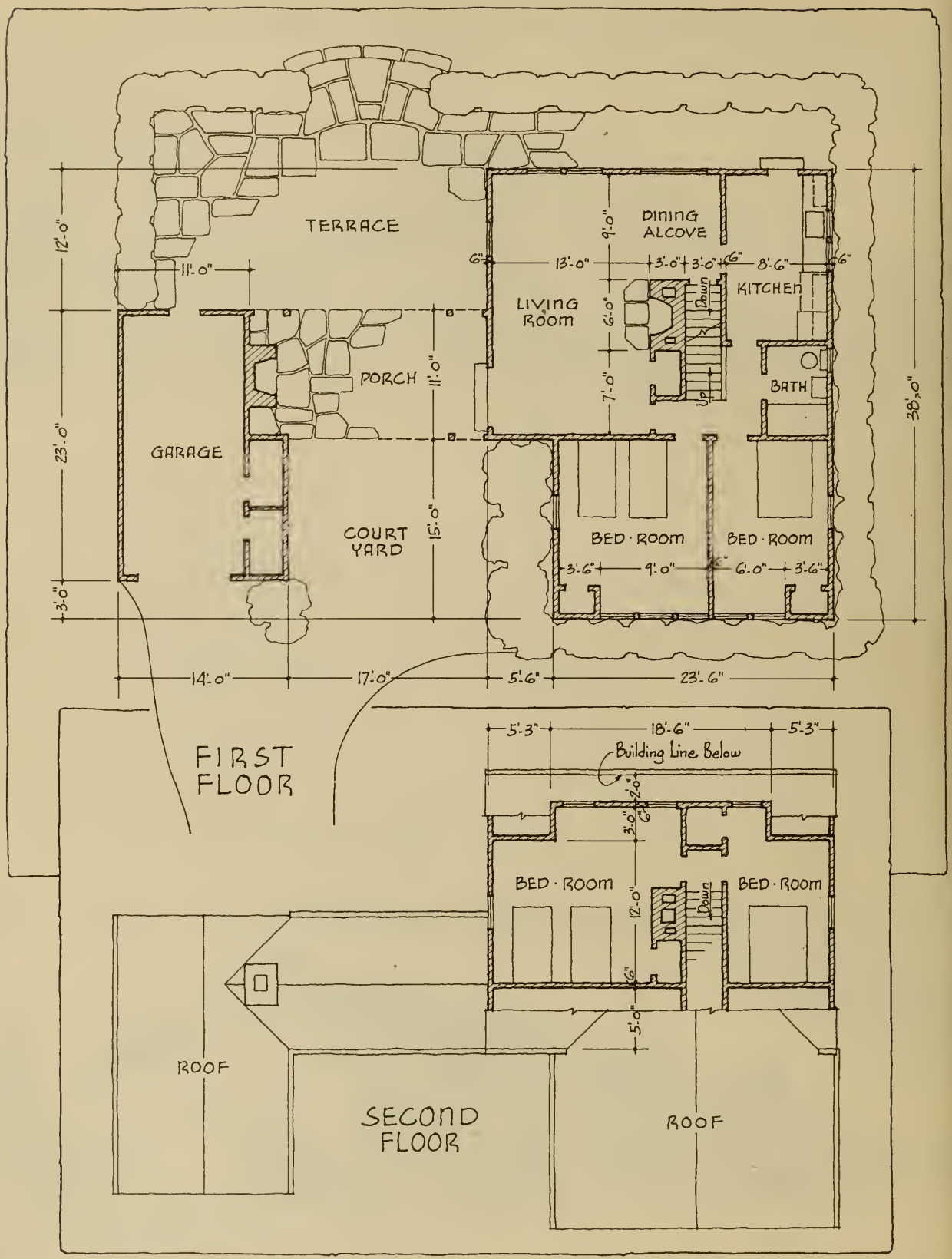

18'-0"
24'-0"
20'-0"
A
10'-0"
6"
2'-0"
6"
10'-0"
BED ROOM
BED ROOM
13'-0"
13'-0"
20'-6"
20'-6"
6"
3'-0"
6"
4'-0"
6"
2'-6"
6"
BATH
HEATER
BED ROOM
SCREENED PORCH
CAR SHELTER
10'-6"
6'-0"
10'-6"
KITCHEN
13'-6"
LIVING-DINING ROOM
6"
4'-6"
4'-6"
12"
14'-6"
28'-0"
7'-6"
10'-0"
12"
A
· PLAN ·


5
12
8'-2"
8'-2"
Extend Footings Below Frost Line
SECTION · "A-A"




13'-0"
13'-0"
23'-0"
DINING TERRACE
LAWN
6"
12'-6"
4'-6"
DINING·ROOM
1'-2"
11'-10"
6"
12'-0"
6"
21'-10"
1'-2"
1'-10"
KITCHEN
LIVING·ROOM
6'-0"
17'-0"
6"
3'-6"
HALL
Laundry Trays
Down
10"
Up
FUEL
HEATER
8"
53'-0"
9'-0"
9'-8"
1'-2"
Up
UNEXCAVATED
19'-4"
FIRST FLOOR
24'-8"
6"
6'-10"
18'-0"
3'-0"
28'-0"


26'-0"
23'-0"
6"
12'-6"
BED · ROOM
BED · ROOM
BED · ROOM
3'-6"
6"
BATH RM.
UPPER PART OF LIVING ROOM
4'-6"
17'-0"
11'-10"
6"
3'-3"
6"
3'-3"
6"
5'-2"
6"
3'-0"
5'-0"
Up
Down
45'-6"
Coal Hole
8"
18'-8"
8"
19'-6"
GARAGE
SECOND FLOOR
Down
24'-8"
6"
8"
7'-6"
DRIVEWAY
3'-0"
15'-0"
3'-0"
28'-0"


TERRACE
DINING ALCOVE
LIVING ROOM
KITCHEN
PORCH
GARAGE
COURT YARD
BATH
BED · ROOM
BED · ROOM
FIRST FLOOR
Building Line Below
BED · ROOM
BED · ROOM
ROOF
SECOND FLOOR
ROOF
12'-0"
23'-0"
3'-0"
11'-0"
13'-0"
3'-0"
3'-0"
8'-6"
9'-0"
6'-0"
7'-0"
11'-0"
15'-0"
38'-0"
3'-6"
9'-0"
6'-0"
3'-6"
14'-0"
17'-0"
5'-6"
23'-6"
5'-3"
18'-6"
5'-3"
2'-0"
12'-0"
5'-0"

CHAPTER VIII

FIREPLACES AND HEATING

A CABIN WITHOUT A fireplace is like a household from which the spark of love has flown; the central binding force is somehow lacking. Shelter from the storm there may be, and warmth from the cold may radiate from stove or furnace, yet somehow warmth is not there. There is no blaze to dispel the gloom, no radiant symbol of the friendship circle. Even though no log is blazing within, the mortared stones which in another use might seem cold, in the fireplace become the very token of coziness and comfort. City dwellings may do without, but fire, visible and close, is the very essence of camp, whether in the open air or in the camp-placed cabin.

Have you ever noticed the spell that comes upon people when the fireplace is lighted? The lively conversation ceases and all eyes turn to the newborn flame; many long seconds pass before someone breaks the spell with spoken word. An irresistible magic is there, with something akin to an hypnotic pull, and withal something deeply and soul-penetratingly satisfying. A sort of racial nostalgia is aroused, like a misty memory of infant comfort, hiking back to those ages on end throughout which the eyes of man have focused on glowing embers. Yes, open fire does more than warm the body—it is tonic for the spirit.

It simmers down to the fact that the fireplace is just about the most important item in the cabin, the life-giving heart around which all else is built. Its size and type should be well considered, and early, as basic to the plan

of the entire cabin. For the fireplace is such a conspicuous entity affecting both the interior and exterior views that it cannot be fitted in as an after consideration. For practical as well as artistic reasons, the massive chimney cannot go just anywhere, but must be considered as one of the focal points around which the exterior lines are harmonized. Neither can the open hearth be placed just anywhere, for not only must it be strategically located for heat, but as the center of the friendship circle, it must be placed with a view to doorways and conflicting passageways.

Not that the fireplace is the best heating unit is it so prized, for one deals in myth if he rates it high in this respect. Government tests indicate that the fireplace is no more than one-third as productive of heat as any good stove. The warmth from a fireplace comes from heat radiating directly from the fire and the surrounding masonry, not at all from heated air currents. Indeed, the air currents work in reverse, to rob the room of its heat and replace it with cold. The air is drawn over the fire and up the chimney taking with it the heat absorbed in the passing, and in so doing pulls down into the room cold air from the outdoors. The ventilation resulting from the process is excellent and in excess of all needs, but the productivity of heat is not comparable in efficiency. Unfortunately, heat does not have the capacity to move around corners of its own momentum, but radiates straight out, unless borne by air currents. The area directly in front of the hearth is amply warm, but far back and to the sides the colder air pulled in will be easily noticeable.

All this should not argue against the installation of a fireplace, however, for, except in very cold temperatures, it will be all that is needed, and its artistic and spiritual contributions transcend all its weaknesses. It is to say that in severe climates a cottage for year-round use may need other heating facilities to which the open hearth will become an ever-delightful adjunct.

It should be pointed out in this connection that there are improvements upon the traditional fireplace designed to throw currents of heated air into the room, thus overcoming the open hearth's one major shortcoming. These modified fireplaces will be described later in the chapter.

Fireplaces are usually thought of in connection with the living room or main room of the cottage, but in large structures they are often installed also in the dining room and bedrooms. Porch fireplaces and even outdoor fireplaces have also become popular.

PLANNING THE FIREPLACE

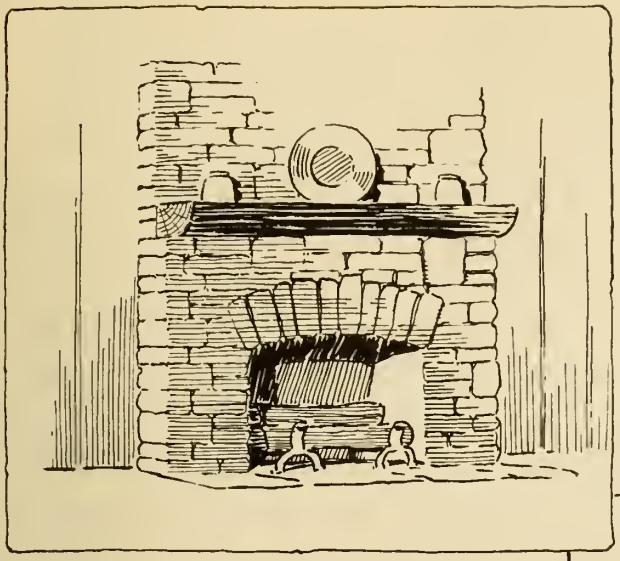
As conspicuous and imposing an entity as the fireplace must be designed as to size with a careful view to the proportion between it and the size of the room. If overlarge, it may dwarf the room from one slant, or seem clumsily overpowering from another. Some there are who suggest that an appropriate overall size for a fireplace is one-third the long dimension of the room, but between the extremes of oversmall or overlarge, there is after all no rule-of-the-thumb guide other than a sense of the rightness of things. In the light of the centrality of the fireplace theme in a camp-placed cottage, however, it may be said that larger fireplaces may appear more harmonious there than would be the case in a city room.

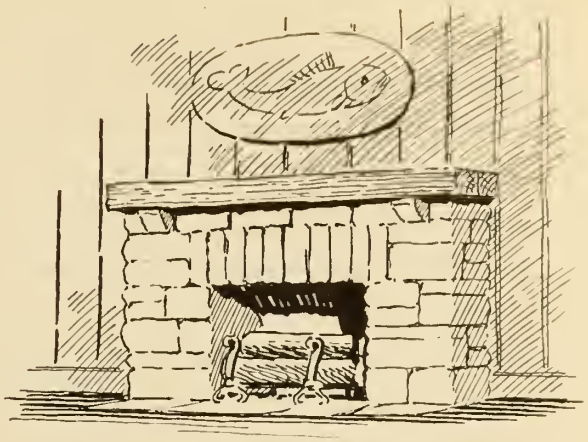
In determining the size, consideration must be given to the type of fuel to be used and its plentifulness. Fireplaces for coal can and should be smaller than those for wood. Where wood is abundant and cheap, it might be feasible to indulge in a fireplace large enough to accommodate cordwood (four-foot lengths), thus to provide a big, cheery and long-lasting blaze, but one extravagant in the relation between the heat produced and fuel consumed. The colonial tradition of huge fireplaces, often with seven-foot openings, in which the cooking was done, are seldom practical nowadays, regardless of the wood supply and, more often than not, are smoky; for living room use, openings greater than five feet are rarely to be recommended. In less favored areas from the standpoint of fuel, fireplaces with 30-inch openings will permit the use of cordwood cut in half.

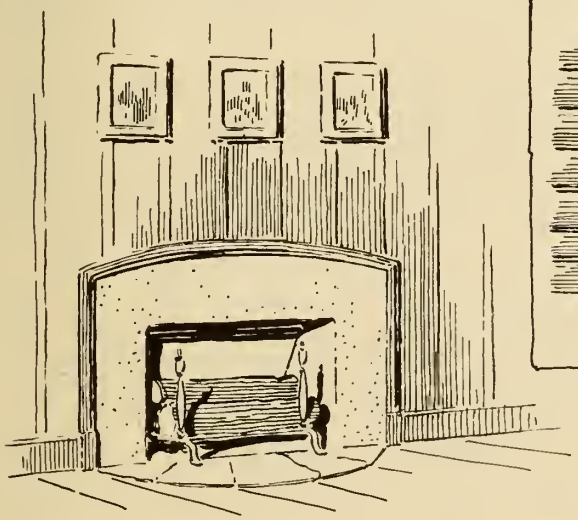
In rooms measuring approximately 15 by 20 feet (300 square feet), fireplaces 30 to 36 inches wide are considered adequate for heating purposes; in larger rooms, the width should be increased.

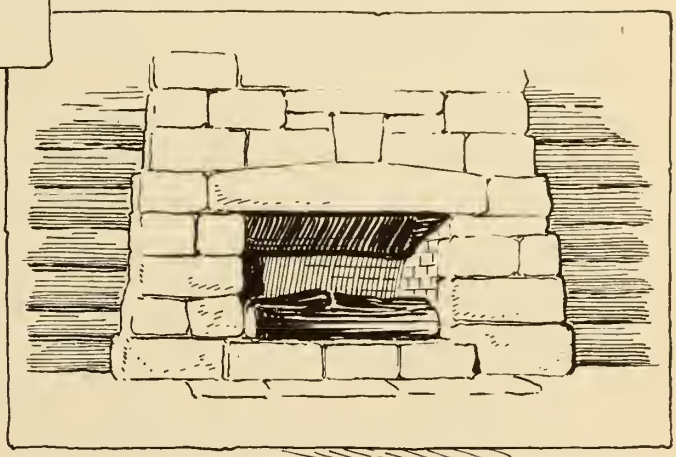
Of materials, here as always, there is only one answer—that which is native. However fond one may be of rocks from far yonder, the fireplace will suit better if it matches the stones of the hillside outside of the casement windows. And bricks are never found on any of nature's hillsides. However, if suitable native materials are not to be had, one would of course import rather than eliminate the fireplace, and in this case, bricks may be the most expedient selection.

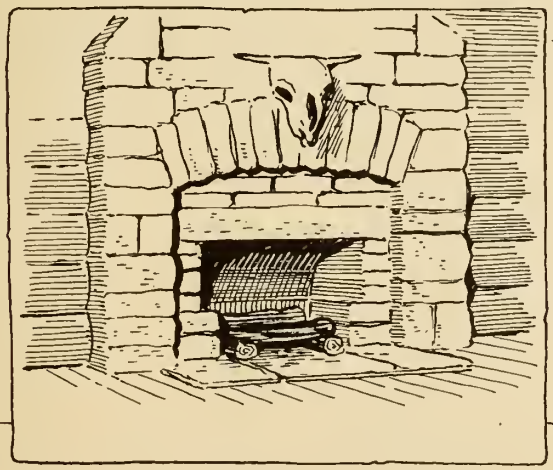
There is no mandate that insists that there be a mantel, for as often as not, fireplaces are without them, but there is a mandate that requires that, if

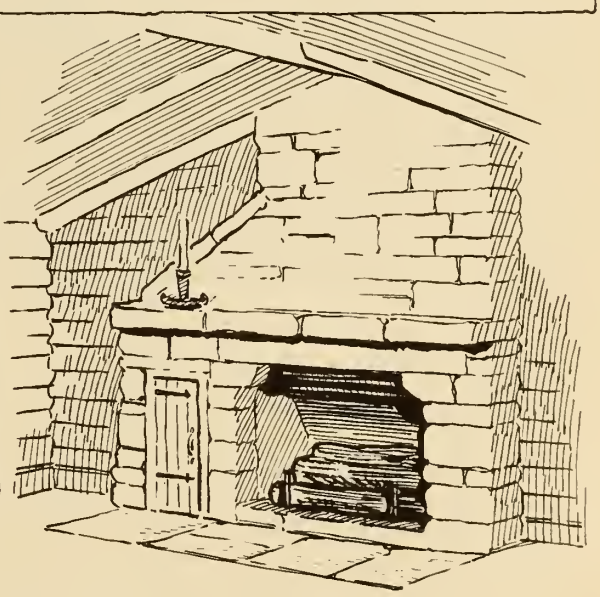












SUGGESTED
FIREPLACE · DESIGNS

one, it harmonize with the materials used in the fireplace, which is to say that it too will be appropriate to the locale. A stone mantel-shelf over a stone fireplace will solve the problem in any type of interior, if a flat quarried rock can be produced, for flat rock is obviously a necessity. Log cabins suggest a log mantel-shelf of some tree with smooth and adhesive bark, such as spruce, pine or tamarack, the log quartered and fitted in the masonry with the curved side outward and downward. Although the fragile and highly varnished mantel of the city living room transported to the camp-placed cottage would be as out of setting as a dinner jacket around the campfire, mantels of finished lumber may be wholly acceptable if they match the interior finish of the cabin. For example, nothing would be more becoming than a mantel of knotty pine boards in a room boarded with knotty pine. The main thing is that the mantel match the interior finish and exterior setting in materials, appearance, and degree of rusticity.

As the width of the fireplace varies, so do all dimensions. For a successful, smokeless fireplace it is vitally important that all dimensions be in correct proportions. The following chart shows recommended dimensions resulting from research by the United States Department of Agriculture.[1]

Opening		Depth	Minimum back (horizontal)	Vertical back wall	Inclined back wall	Outside dimensions of standard rectangular flue lining	Inside diameter of standard round flue lining
Width	Height						
Inches	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
24	24	16-18	14	14	16	8½ by 8½	10
28	24	16-18	14	14	16	8½ by 8½	10
24	28	16-18	14	14	20	8½ by 8½	10
30	28	16-18	16	14	20	8½ by 13	10
36	28	16-18	22	14	20	8½ by 13	12
42	28	16-18	28	14	20	8½ by 18	12
36	32	18-20	20	14	24	8½ by 18	12
42	32	18-20	26	14	24	13 by 13	12
48	32	18-20	32	14	24	13 by 13	15
42	36	18-20	26	14	28	13 by 13	15
48	36	18-20	32	14	28	13 by 18	15
54	36	18-20	38	14	28	13 by 18	15
60	36	18-20	44	14	28	13 by 18	15
42	40	20-22	24	17	29	13 by 13	15
48	40	20-22	30	17	29	13 by 18	15
54	40	20-22	36	17	29	13 by 18	15
60	40	20-22	42	17	29	18 by 18	18
66	40	20-22	48	17	29	18 by 18	18
72	40	22-28	51	17	29	18 by 18	18

[1] Senner, Arthur H. and Miller, Thomas A. H., *Fireplaces and Chimneys*, Farmers Bulletin, Number 1889, page 39. Washington: Government Printing Office, 1941.

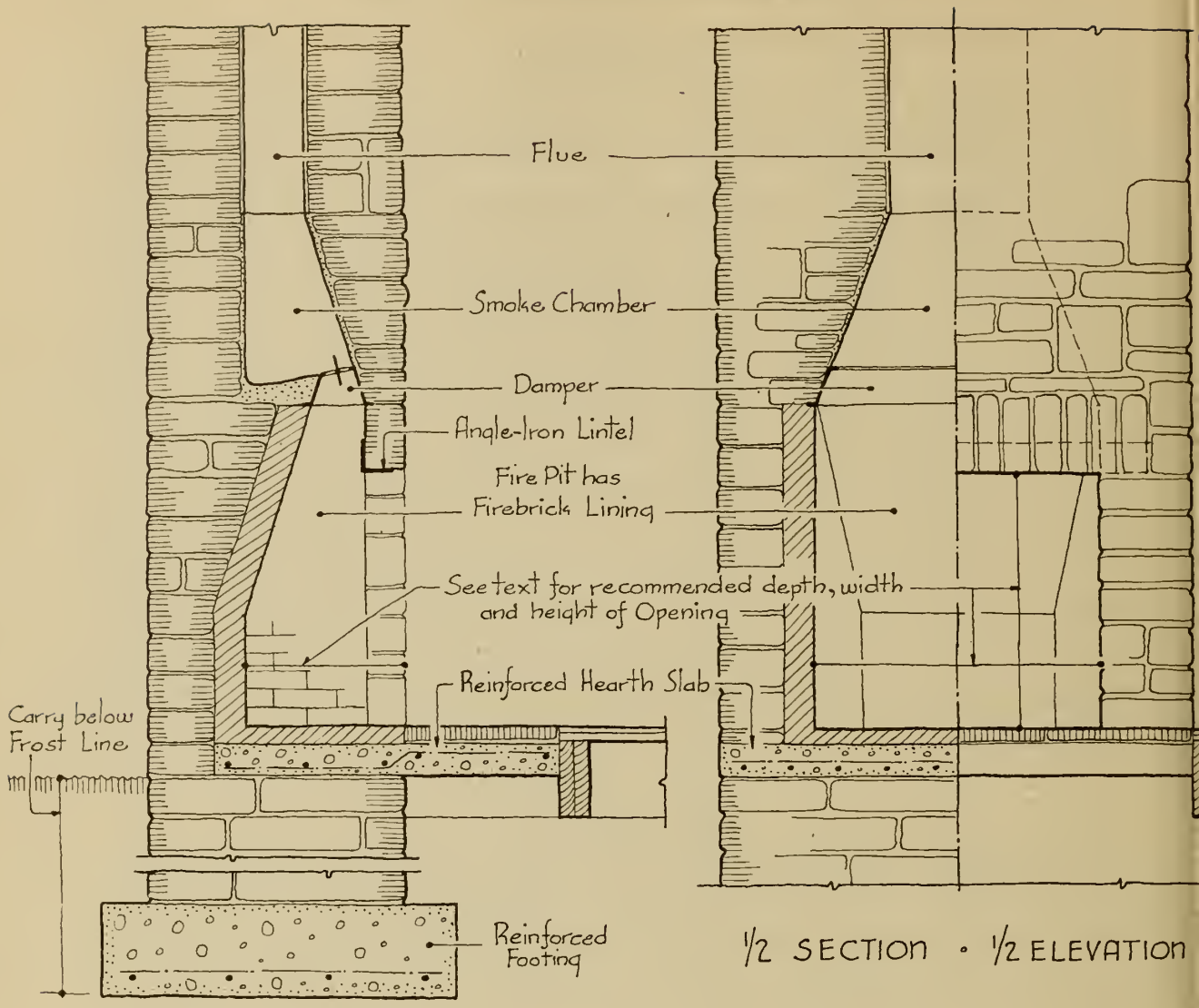
FOUNDATION

The footing of the fireplace should be built at the same time the foundation of the house is laid and as part of it, another reason why the exact plans for the fireplace should be completed before a hand is turned in the construction of the cottage. This foundation at its top surface should be the size of the fireplace, and if there is no basement can well be increased to include the hearth, and should have a footing projection of eight inches at its bottom. In cold climates it should extend downward below the frost line. The footing consists of a slab of concrete 12 inches thick in which are placed deformed steel rods laid crosswise 10 to 12 inches on center and securely wired at all intersections. These rods are placed a few inches from the bottom of the slab as the concrete is laid and serve to prevent sagging and cracking of the slab. When this footing slab is set, the foundation of the fireplace is built of stone or concrete on top of it, first building board forms in the usual manner. The foundation is carried up to the bottom of the floor joists, at which point it is left until the construction of the fireplace proper is to be undertaken.

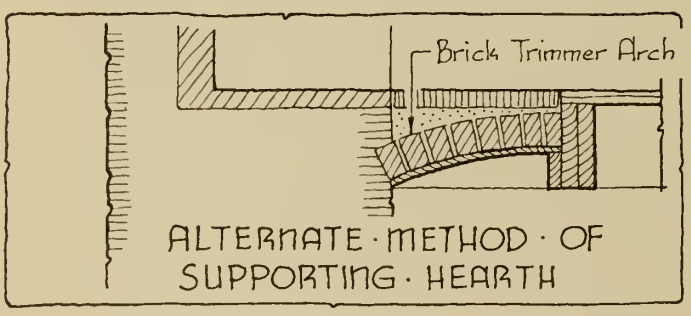
CONSTRUCTION

The accompanying diagrams show the details of the construction of a fireplace. No other item in the building of a cottage requires more careful attention to proper design and proportion lest a smoky fireplace, than which there is nothing worse, or one with poor heating qualities, results. And in the building of no other item will the assistance of an experienced hand be so much appreciated. But however many fireplaces your stonemason may have built, it is well to inform yourself on correct design and keep an eagle eye on the proceedings as they go along.

Plan of the Fire Pit.—The side walls of the fireplace arise perpendicularly up to the throat, and above it. The back wall, however, arises perpendicularly a short distance and then slopes forward. This perpendicular rise is usually eight inches, but never over one-half the height of the front fireplace opening. The angle of the forward slant of this back wall should never be over 30 degrees to the vertical. The side walls may extend straight back from the front to make a rectangular floor, or, and more typically, may



½ SECTION · ½ ELEVATION



ALTERNATE · METHOD · OF SUPPORTING · HEARTH

FIREPLACE · DETAILS ·

slant inward. The purpose of the slanting back and side walls is to reflect the heat of the fire into the room, just as the curved surfaces of an automobile headlight direct the brilliance of the bulb onto the road.

Hearth.—The hearth may be flush with the floor or may be elevated about a foot. There are arguments favoring each; if level with the floor, sweepings may be conveniently brushed inside, and inside sweepings brushed out; if elevated, it throws the heat out at a higher level and takes less stooping to tend the fire. Level with the floor is the common practice and is usually favored.

The hearth should project 20 inches from the fireplace and, in width, should be the width of the fireplace plus 24 inches.

The hearth may be of stone, brick, soapstone, tile, slate, or reinforced concrete. If the foundation of the fireplace does not extend out to include the hearth, the hearth may rest on a level concrete slab or on a trimmer arch as shown in the diagram.

Walls.—The minimum thickness acceptable for fireplace walls is eight inches in brick, and 12 inches in stone construction. Regardless of materials, an exterior wall, as at the rear of the fireplace, should not be less than 12 inches.

The back, sides and floor of the fire pit should be lined with firebrick laid in fire clay. The thickness of the firebrick section of the back and sides should be four inches and, therefore, it is best to lay the bricks flat.

Lintels.—A lintel will be necessary across the top of the opening of a rectangular fireplace to support the masonry above. If of normal size, an angle iron 4 x 3½ x 5/16 inches is sufficient; larger openings will require a heavier iron. A horizontal stone of sufficient height and thickness to support itself and the masonry above it may be used as the lintel, obviating the need of any steel support.

If a fireplace has an arched top, a lintel will be unnecessary, reliance being placed on the masonry of the arch for support, with special attention given to the sturdiness of the side walls which must support the pressure.

Damper Opening.—It will be noted from the diagram that the sides of the fireplace are vertical up to the damper opening or throat. This throat begins at a point six to eight inches above the lintel. At this point the throat has a width equal to the full width of the fireplace, which width continues

upward for another five inches and then slants inward on each side until it reaches the size of the chimney flue. The distance of the flue above the lower edge of the throat is not determined by any fixed measurement but by the angle of 30 degrees to the vertical—the masonry on each side is laid at this angle until the point is reached where the width is equal to that of the flue.

The area above the damper opening or throat proper and below the flue is called the smoke chamber. Its sides should be given a dash coat of mortar not less than one inch thick and finished smooth. This is important, since projections or irregularities in the smoke chamber will interfere with proper draft and lead to smoking of the fireplace.

It will be noted in the diagram that there is a smoke shelf directly behind the damper at the top of the throat and extending back to the rear wall of the smoke chamber. This shelf is the full width of the fireplace and in depth may vary from 6 to 12 inches, depending upon the depth of the fireplace, those with greater depth having a deeper smoke shelf. It is against this smoke shelf that the cold downward-moving air is deflected, heated, and reversed to complete its cycle upward, carrying the smoke with it out of the flue.

Damper.—The damper serves the same purpose in a fireplace as it does in a stove. While many a fireplace is made without one, better heating results will be achieved if there is some way of regulating the draft. There are many makes of dampers on the market but all consist of an iron frame in which a lid is hinged which is controlled by a handle so that the size of the opening in the throat can be regulated. The damper will of course be selected before the throat is designed because the different makes fit into the masonry in different ways. The depth of the throat in which the damper lid turns should not be less than 4 nor more than 5½ inches.

Another advantage of a damper is that it can be closed in summer to prevent insects and worms from coming down the chimney into the room.

A word of caution is here in order. Many a fire has been started with no thought given to the position of the damper. If it should happen to be closed, a hasty quenching of the fire must be made or a room full of damaging smoke will result.

Chimney Flue—To save money, chimneys are sometimes left unlined, but it is always to be recommended that flue linings be added. These flues

may be either rectangular or round, both being standard commercial types. Two factors regulate the size of a flue, first, the fireplace opening, and second, the height of the chimney. By the fireplace opening is meant the front opening, the width multiplied by the height. If the chimney is 22 or more feet in height, the flue should be 1/12 or more of this fireplace opening. If the chimney is less than 22 feet, the flue may be as small as 1/10 of the fireplace opening. When the desirable size of the flue is determined by these factors, the commercial flue should be selected that comes nearest to these measurements, it seldom being possible to locate the exact size.

Proper draft depends not only upon the size of the flue but the height of the chimney. The chimney should extend at least three feet above a flat roof, and at least two feet above the ridge of a pitched roof. Improper functioning often results also if the chimney is in too close proximity to trees.

The masonry of fireplace chimneys should be at least 8 inches thick for one-story, and 12 inches thick for two-story buildings, and if of stone, should be 12 inches thick in any case. If furnace and stove flues are to be added to the fireplace chimney, the width of the masonry between them should never be less than four inches if flue linings are used, and eight inches if there is no lining.

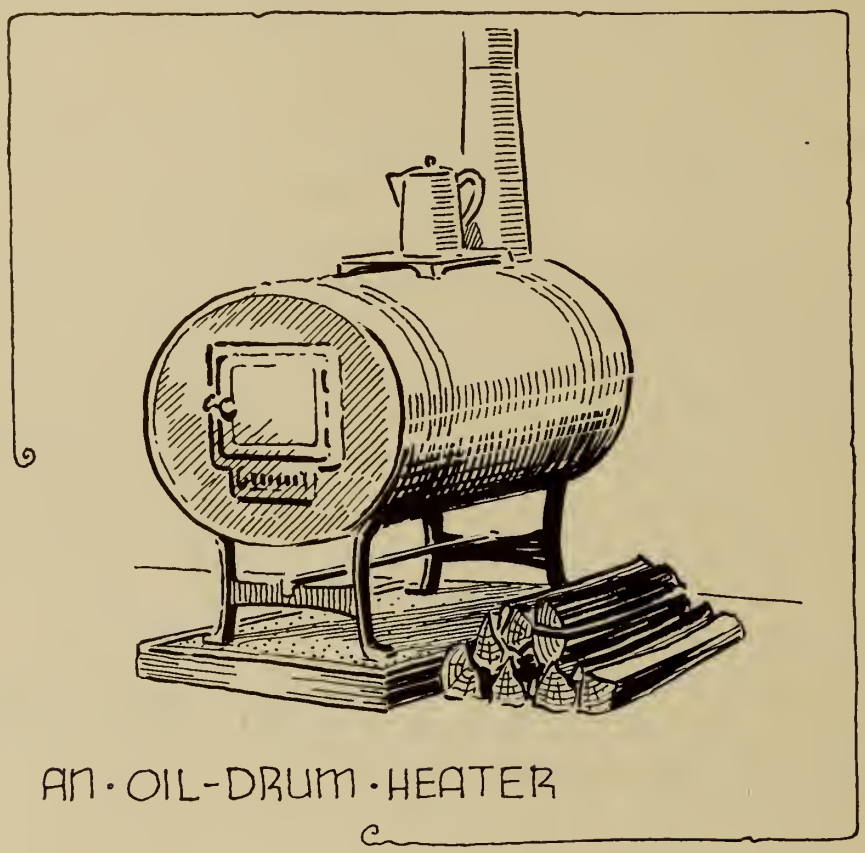
Interior surfaces of flues, as in smoke chambers, should be as smooth as possible to assist the draft. If commercial linings are omitted, the flue surfaces should be parged with cement mortar.

MODIFIED FIREPLACES

As previously stated, the chief shortcoming of the fireplace is that it throws heat by direct radiation only and does not have the capacity to send heated air currents into the room. The modern modified fireplace is designed to remedy this by providing air intakes at the floor level and heat outlets through grills at the mantel level. There are several makes of these, widely advertised, and experiments by the United States Department of Agriculture show that the better designs when properly installed and operated increase the heat output very appreciably.

In most cases the units are of heavy metal consisting of firebox, throat, damper, smoke shelf and smoke champer, designed to be set in place and

covered with masonry, so that when finished, only the grilles are visible. In purchasing correctly proportioned units in this way there is little chance of a poorly designed and smoky fireplace, provided the instructions for chimney size are followed.



STOVES

Of stoves there are many, of a wide variety of sizes, and varying degrees of ornamentation, but if all you want is heat in the quantities needed, and in the style characteristic of the Northwoods, you will turn to the simplest and most efficient of heaters—one made of an old oil drum. It is common knowledge in that land of bitter cold that the oil barrel has no equal among low-priced stoves, and no superior at any amount of money. It may be no ornament in itself, but it has pleasant connotations to those who have memories of cozy winter nights in Northland cabins, and its long tradition gives it a certain appropriateness that transcends polish and frills for any simple cabin dedicated to outdoor living.

Oil drums come in two sizes, 30-gallon and 55-gallon, and of the two, the smaller size is more commonly seen. The castings made for the purpose can be purchased from any rural hardware store in the cold climates, and can be assembled on the drum by any blacksmith or fixit shop. The parts consist of a front frame with fire door and draft door, the pipe collar, legs, and top plate. Grates can be had also, but the stove works better if the wood burns in its own ashes. Grates permit the use of coal to some extent, but the oil drum is primarily a wood heater.

For a large cabin, two oil drums may be arranged, one above the other to greatly increase the amount of heat from the same amount of wood. In this case the fire is confined to the lower barrel only.

FURNACES

Unless for year-round use in severe climates, a fireplace supplemented by the kitchen stove and a movable oil-burner or two should make the cabin sufficiently comfortable for even the most cold-blooded of individuals. The winters of the northern states, however, if the cabin is to be inhabited then, may require additional and more secure fortifications. For small cabins the wood heaters just described, or their more polished relatives, should be altogether adequate, but larger ones may cause one's thoughts to turn to a furnace, and a basement large enough to house it.

Particularly appealing for cottage use in their simplicity and relatively low cost are the pipeless furnaces which throw heat through one large central register in the floor of the main room. These have been found particularly satisfactory for one-story floor plans in which there is a large central room with smaller rooms opening off it.

Large structures of many rooms requiring furnace heat piped throughout are scarcely within the pale of this book, since there would be nothing unique about the furnace arrangements over those in any similar city house. If the cabin is beyond reasonable transportation limits for coal or oil, wood-burning furnaces are available, but in deciding upon one of these for a big place, one should be prepared for the impact of sizable fuel bills, for they consume an amazing amount of cordwood.

CHAPTER IX

OUTDOOR GRILLS

It may be a simple little outdoor grill whereon an occasional meal may be cooked, camper fashion, or an elaborate exterior fireplace with all the concomitants for resplendent outdoor dining, but facilities for outdoor cooking there surely should be. As every seasoned camper knows so well, to live in a wildwood setting and not to cook in the open, frequently at least, is to close one's eyes to one of the greatest charms the outdoor world can offer. It is around the open fire, with the odor of food made doubly aromatic by wood smoke, and with the faint sting of wood smoke in one's eyes, that one feels himself in closer harmony with the world of green and growing things.

In primitive settings, fires can of course be built on the ground as any camper would do, but if in close proximity to the cottage, it is more in line with the tidiness of good housekeeping to confine them to one spot, and it is more conducive to frequent use if a permanent arrangement is constructed with a convenient grill and level surfaces for pots, pans, and dishes. From these simplest arrangements of masonry, lining the sides of a fire built on the ground, the outdoor kitchens range all the way up to elaborate fireplaces and barbecues, forming the focal points for pretentious garden landscapes. Needless to say, as the type and the pretentiousness of the cottage varies, so will the appropriateness of the various types of fireplaces. As a general principle, however, unless a major show feature is to be achieved as the part of a general architectural and landscaping layout of the place, the fireplace

should be designed for simplicity and utility, rather than ornamentation. For the reason that long experimentation in public parks has indicated there is not much of any way to handle simple grills so as to achieve pleasing ornamental effects anyway, and viewed practically, the simplest serve their purpose as well and often better than the huge piles of masonry. It is better to let the grill nestle quietly into nature's scene, or even into man-made landscaping, than to pile stone upon stone into massive piles with towering chimneys that serve neither utility nor artistry.

Above all, in materials used and in design selected, the fireplace should harmonize with the site and the general locale.

LOCATION

There are, after all, only two matters of concern in selecting the location for a simple little outdoor grill, first, the matter of draft, whether of too much or too little, and second, the finding of a spot where it will nestle into the site pleasingly and unobtrusively. In respect to drafts, it is well-known that an open campfire is difficult to manage in heavy wind, and an open-topped fireplace makes of it an open campfire. One should therefore avoid breezy points and close proximity to the lake shore where the winds are frequent and strong. In staking out the grill in a more secluded spot, it should be recalled that fire must have draft, and, therefore, the open front of the grill should face toward the prevailing breeze; when there is no chimney, the only source of draft is the breeze, and if crosswise of the grill, sluggish and uneven heat will result. Wherever the fireplace is located, there the dining will be done, and so it should be placed with a view to shade and comfort. If at the edge of an open area, it becomes less conspicuous and less in the way of activity; and if there is a hill, it may find its place most agreeably there, just at the edge of the level where the land begins to rise.

The location of a large outdoor cooking unit or barbecue becomes an architectural problem rather than one of mere convenience, in that it must be related to the buildings and general layout of the place so that the whole thing hangs together as an entity. The plans for it become a part of the plans for the cottage itself, and should be developed when the cottage plans are drawn, and not as an afterthought. A discussion of such as these will be found later in the chapter.

PRIMITIVE CAMPFIRE PLACES

Those who have located their cabin in the far wilderness may find in the simple, primitive fireplaces of the trailwise camper all that is needed for convenience and appropriateness. There is no gainsaying that they are as efficient and convenient in the hands of those who know the wildwood way, even if they are more temporary and short-lived, than their more civilized offspring of masonry. The hunter-trapper fireplace with its side logs, or with its two rows of loose-laid stones, the crane supporting the pots, the Chippewa kitchen, the reflector fire, the elevated fire altar of logs—these and many others which will serve well the purpose of the wilderness cook are described and pictured in other books by the writers.[1] The details can be found there.

SMALL OUTDOOR GRILLS

The outdoor grill or picnic fireplace is nothing more than a permanent campfire place with a stationary support for a metal grate. When a fire is built in it, we actually have an open campfire. Since this is what it is, it should remain low to the ground, with the fire resting on ground level or slightly above it. Used but occasionally as it will be, the stooping required for cooking on it will not offer sufficient inconvenience to justify piling up masonry in order to bring it up to a kitchen-range height. The latter might be desirable for an outdoor stove to be used regularly, but scarcely so when the fireplace is only an adjunct to an indoor kitchen. Moreover, to elevate the grill in an effort to make a more conspicuous show piece of it is again not a wise choice for, as previously stated, no way has been devised to make these outdoor grills particularly attractive in themselves. In the parks where there has been years of experimentation with outdoor fireplaces, the tendency is more and more toward the simplification and toward lowering the grate level both for practical and artistic ends.

[1] Bernard S. Mason, *Woodcraft*, pp. 96 to 158. New York: A. S. Barnes and Company, 1939.

Bernard S. Mason, *The Junior Book of Camping and Woodcraft*, pp. 50 to 79. New York: A. S. Barnes and Company, 1943.

Bernard S. Mason, *The Book for Junior Woodsmen*, pp. 102 to 105. New York: A. S. Barnes and Company, 1945.

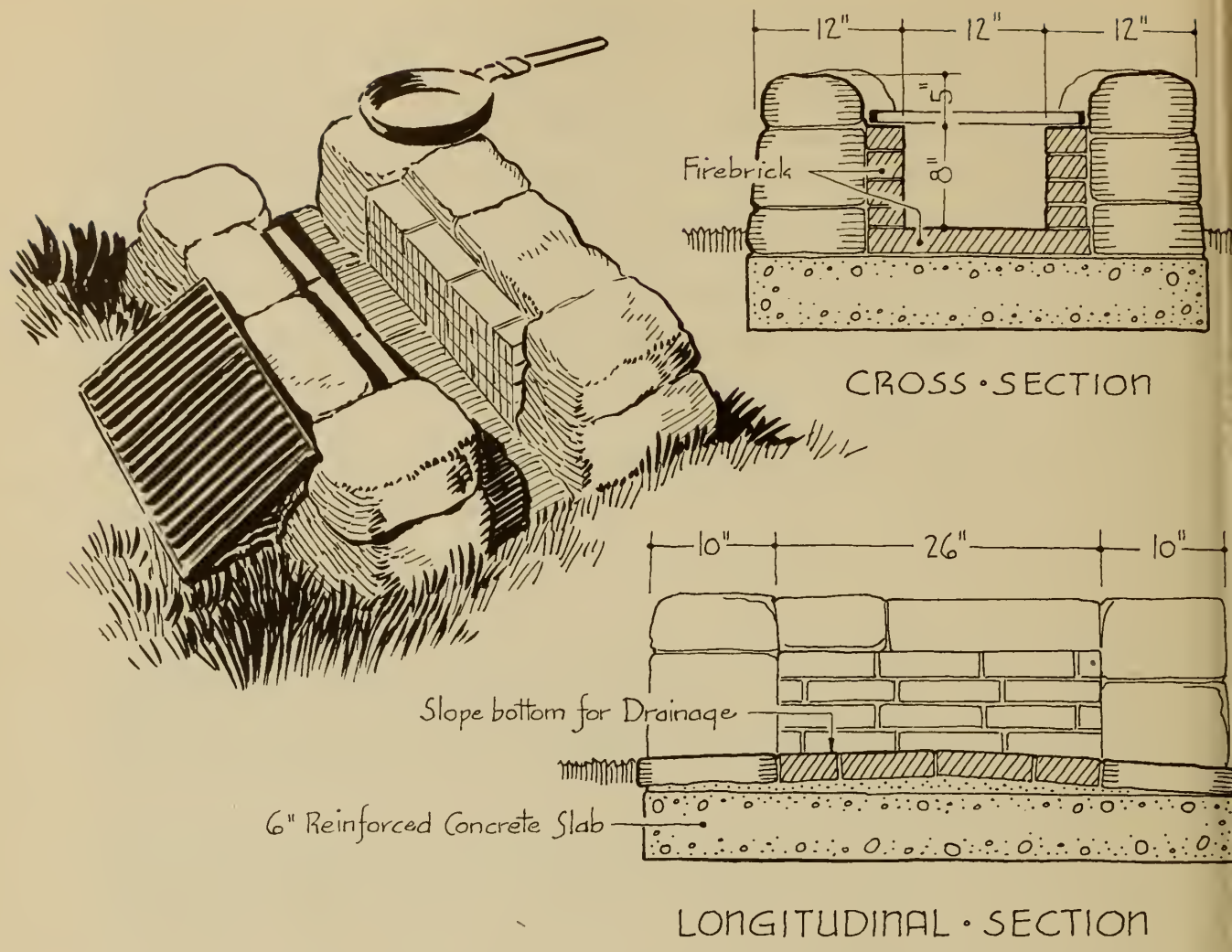
The usual size of the fire box is 12 inches wide and 24 inches long. The traditional 12-inch height of the grate above the floor has been found too high for effective campfire cooking since reliance is placed more on heat from coals than from flame. A height of from six to seven inches has been found more satisfactory, at which level heat from both coals and flame can be employed as desired. Less wood is required, and the low elevation makes possible also the use of charcoal. A mistake sometimes seen in elevated fireplaces is the insertion of bars in the masonry a foot or so below the top grate to provide a surface on which to build the fire. This necessitates cooking by flame only, since the heat-giving coals drop through the bars to the space beneath and their value is completely lost.

However small it may be, the masonry of the fireplace must rest on a cemented foundation, which may be one of two types, either a surface slab of concrete, or a solid mass extending below the frost line. If the fireplace is low of elevation, not over 24 inches, the surface slab should be sufficient, but it is essential that it be reinforced with iron bars placed in both directions, 10 to 12 inches apart, wired at the intersections, thus to prevent sagging. The bars should be placed a few inches above the bottom of the slab as the concrete is poured. Foundations extending below the frost line do not need this reinforcement.

Of whatever material the fireplace is to be made, it is always best to line the fire box with fire brick, mortared with fire clay. The floor should be an inch or so higher at one end, or an inch higher in the middle than at the ends, to permit drainage.

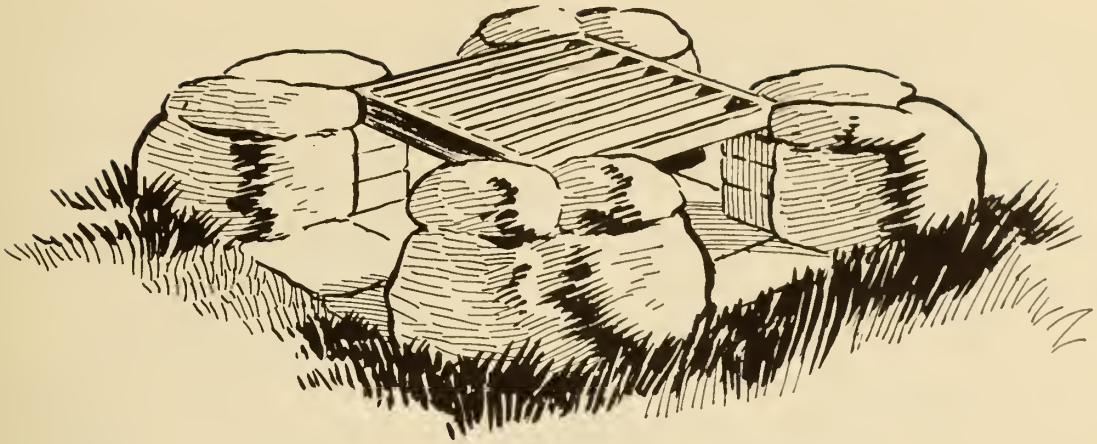
The top of the fireplace may be either an open grate or a solid metal plate. For a campfire-type outdoor grill, the open grate is more appropriate and will permit the fire to function better. Solid plates, preferred by many because they do not blacken pots, require for their best functioning a chimney or chimney notch. The open grate may be either a series of simple bars, or a heavy wire mesh. The grate or plate should be movable, and since there is little danger of theft at a private place, it can merely rest on the masonry without chaining or otherwise attaching it permanently, as is customary in the public parks.

Open-End Grill.—The grill pictured in the sketch, open at both ends, is one of the popular types of the United States Forest Service, and is typical

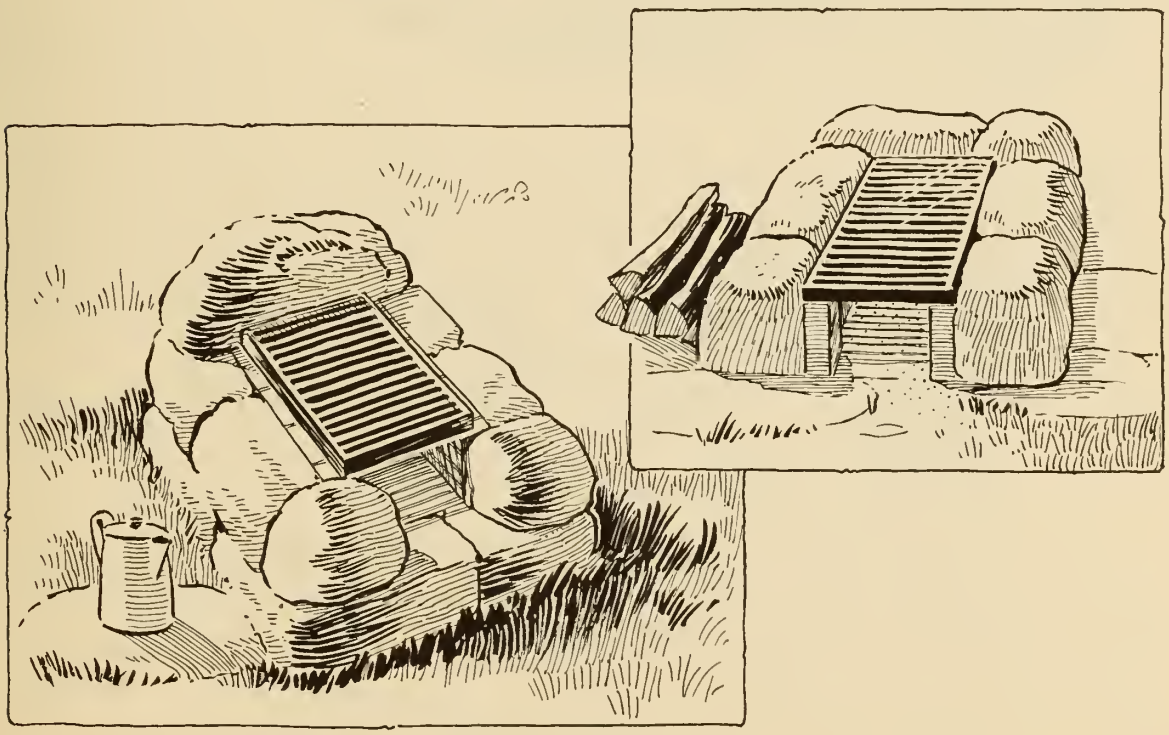


of many plans for these simple campfire-like fireplaces. This is, in reality, a permanent adaptation of the ancient hunter-trapper fire, known to every Northwoods camper, with its two logs laid either side the fire to support the pots and pans. Whereas in the camper's hunter-trapper fire, the logs can be moved in any direction so as to cause the wind to enter the open end, the permanent fireplace has no such flexibility and, therefore, attention should be given to facing the open end in the direction of the prevailing winds. With the whims of the winds as they are, however, the fireplace described next, open on four sides, may in some locations be preferable.

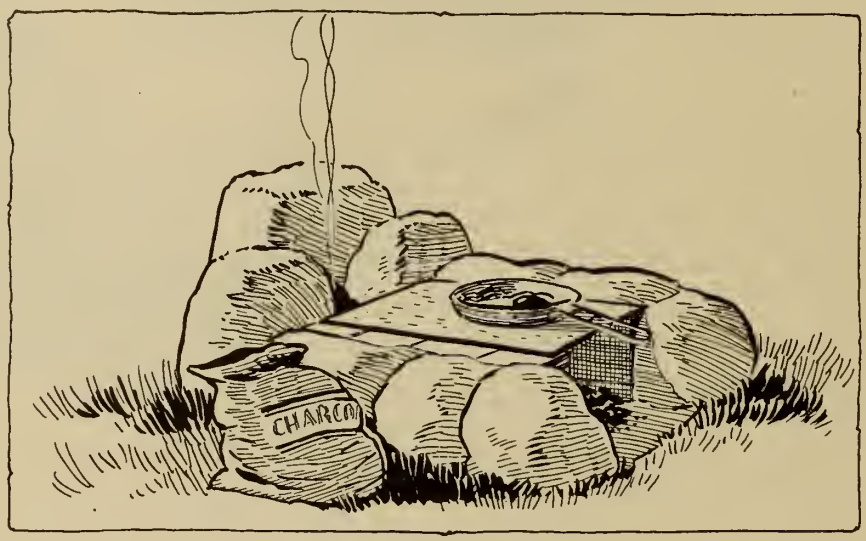
Corner-Pier Grill.—This is the extreme of simplification in picnic fireplace construction, yet it possesses some advantages over the more preten-



tious types. There are merely four corner piers of masonry to support the open grate. Excellent draft is assured, regardless of the way the wind happens to blow. The solid sides of the open-end type just described have the advantage over the present type of retaining the heat and throwing it upward, onto the pots, but the advantage here is, after all, slight. The simplicity and economy of construction of this fireplace has made it appealing, and it is growing in favor rapidly in parks and picnic areas.



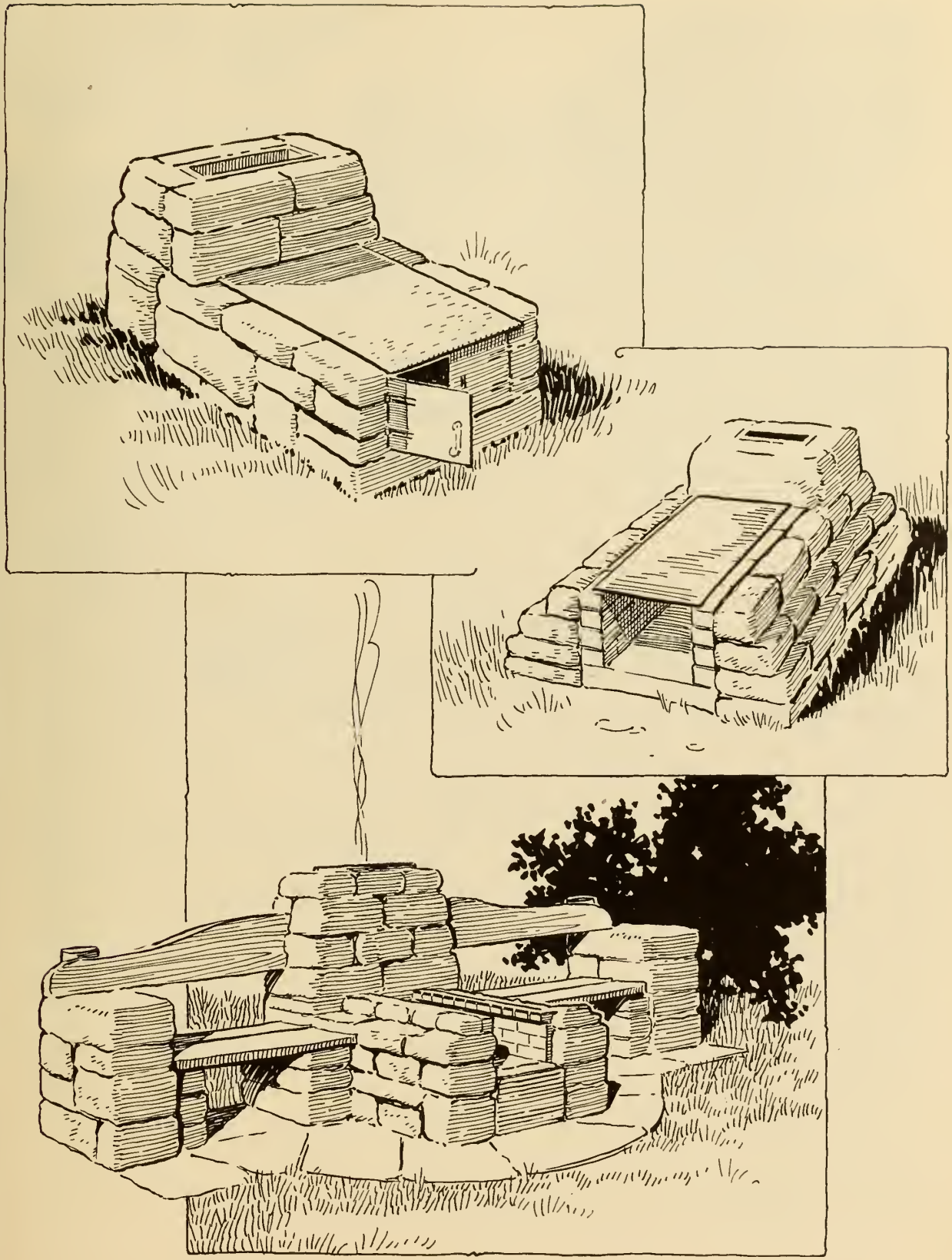
U-Shaped Grills.—These fireplaces have a more substantial and permament appearance, but the practical advantages of the closed end over the types just described are questionable indeed. Certainly it cannot be maintained that the draft is improved. An open grate is of course essential here for otherwise there would be no opportunity for draft at all. If a solid plate is desired in this general style of fireplace, the chimney-notch variation described next should be employed.



Chimney-Notch Fireplace.—This is a compromise between the simple open grill and the chimney type of fireplace. Its solid back has a small opening or notch left in it which serves the purpose of a chimney to permit draft through and under the solid plate that tops the fire box. Without this notch, a solid plate would not be usable since there would be no opportunity for draft. Fire lives on air and cannot thrive unless there is an abundance of it.

CHIMNEY-TYPE FIREPLACES

One of the most abhorrent features of many of the traditional picnic fireplaces is a chimney raising its ugly head overhigh, to throw the whole structure out of proportion, and to add nothing either in artistry or in improved utility. Manifestly a small picnic fireplace with an open grate of the type described in the preceding section does not need a chimney for proper func-



tioning, and definitely not for ornamentation. Only when a solid plate encloses the top of the U-shaped fireplace to make a stove of it does a chimney of some sort become essential. As a guiding principle, it should be kept in mind that the chimney will be less objectionable to the eye if it is kept as low as possible so as to give the overall appearance of the fireplace horizontal rather than vertical lines. Chimneys are more common and seem more in place in camp stoves built up to a convenient working height comparable to that of a kitchen range.

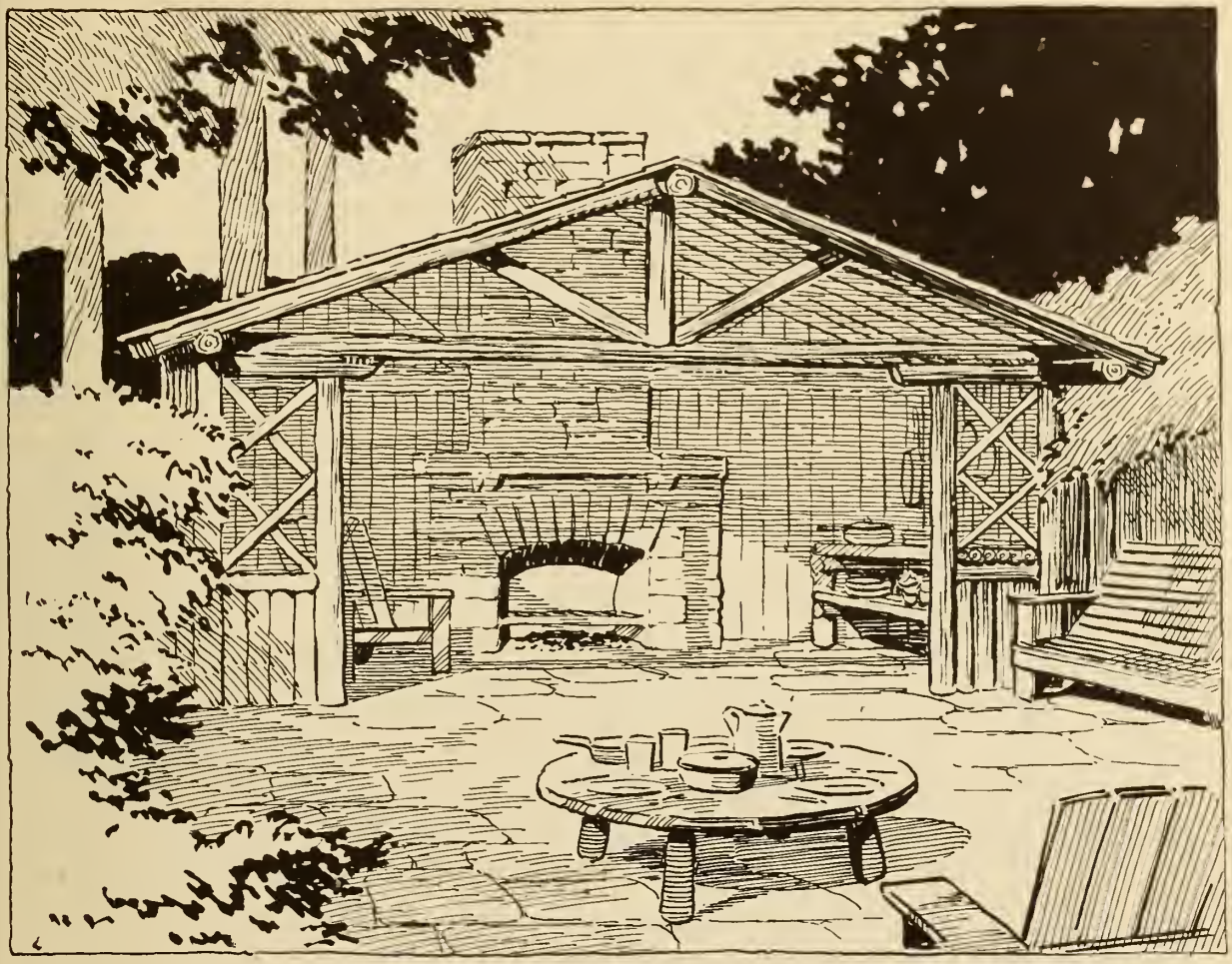
The sketches show simple camp stoves of the low-chimney type. A common mistake in elevated stoves is to allow too much height between the bottom of the fire box and the top grate. Whereas in picnic grills with open grates, 6 to 7 inches is ideal, in a camp stove with a solid plate, 12 inches is satisfactory, but seldom more. With top plate and chimney, what we actually have is a stove and, while it may operate satisfactorily if facing the breeze, much will be gained if the fuel doors are added to control the draft.

LARGE BARBECUE UNITS

A large unit may either be attached to one of the permanent structures such as the house itself or the garage, as an integral part of it, or it can stand separately as an entity in itself. In either case, the plan for it should be developed as part of the plan for the house itself for, even if standing separately, it must tie in to the general layout. Large units are scarcely appropriate anyway except in large developments.

In many situations, there would be distinct advantages in uniting the fireplace with a permanent structure. A back porch, for example, may house the fireplace to give the rear view an agreeable look of warmth and hominess, with the table sheltered by the porch, the warmth of the fireplace driving off the evening chill, and all but a few convenient steps from the kitchen door. The barren wall of a garage or tool shed, unsightly in its blankness, might become a highlight of the whole yard picture were a barbecue unit built into it. In all such cases the usual regulations apply to the height of the chimney above the building (see page 139).

A fireplace unit separate from the buildings may tie in admirably with a garden wall to break its monotony, or with a retaining wall that otherwise might be unsightly. In formal layouts, the fireplace is often placed in direct



line with a main feature of the house, such as a large rear door with a walk connecting the two. In any case, it should not be too far from the kitchen, and if possible, should be so placed as to face the prevailing winds. Since the fireplace will find its greatest use at the dinner hour, attention should be given to the late afternoon shade. As in the case of an inside fireplace, trouble may be encountered with draft if the chimney is in too close proximity to trees or shrubs which may overhang it or shut off the breeze.

The principles of outdoor fireplace construction differ not at all from those described for indoor use in chapter VIII. Here, as there, the same careful attention should be paid to correct proportions of all the dimensions, and to the size and shape of the smoke chamber, damper, and flue.

CHAPTER X

CABIN MISCELLANY

WHEN THE cottage is completed, we have a building but it still must be turned into a home. More than the architecture of the structure itself, it is the fixings and the furnishings, inside and out, that make it homey and livable, inviting and satisfying, that make it seem like *you*. Located in out-of-the-way places as most summer homes are, the fixings also take on a special practical import, for they will define the degree of convenience and comfort that will be enjoyed as life in the cottage goes along. The ingenuity exercised in developing them is directed toward good ends.

A few suggestions of this type and that comprise this chapter. To complete the scope of any one would call for many pages, perhaps book-length treatment in many cases. If what is here said will serve as a springboard to enable the builder to utilize his own experience, creativity, and good taste a little more effectively, it will have served its purpose. In the more technical phases it is assumed that here, as in the building of the place itself, the assistance of local specialists will be solicited.

FURNITURE AND FURNISHINGS

First off, let it be said that your cottage will be more inviting to yourself and your friends if it has no suggestion of a secondhand store or a junk shop. Simplicity and unpretentiousness of furnishings, yes—but unwanted discards from a city home, never! The very freshness and newness of the

things all around, and the lushness of the world of growing things outside, stoutly protest against making of the cabin a place in which to dump the contents of the attic! The pursuit of economy in cabin furnishings is understandable enough, and commendable if for no other reason than that it may serve as a safeguard against overelaborateness and citylike sophistication, but it need not lead to filling the vacation home with moth-eaten upholstery, rickety rockers, and scraps of threadbare carpet.

Moving away from the secondhand, anything-will-do school of thought, we come next to the packing-box expert who feels that makeshift furniture from old crates and empty barrels best fits the cabin scene, and demonstrates an ingenuity becoming of a camper. A little of this may be tolerable on occasion, and may add a useful and appropriate article here and there. If you are of this turn of mind, many suggestions are available,[1] if indeed suggestions are necessary.

Next of kin, and a step up the social scale, is the slab artist, who seeks the discards of the sawmill and fashions rustic stools, chairs, benches and tables therefrom. In settings where the rustic is indicated, this is a long stride in the right direction, but the results would be more pleasing if the stride could be a little longer so as to reach the level of substantial, solidly-built, and well-finished log furniture.

The principles governing the selection of furniture are the same, whether for city or country place: suitability to the purpose for which it is intended, appropriateness to the setting, and attractiveness. For use in a camp-placed cottage or summer home, a further mandate is binding—that of simplicity. The matter of appropriateness to the setting brings to mind what might well be listed as a separate guiding principle—harmony with the tradition or established custom of the locality.

That log furniture meets these standards in many types of camp settings surely needs no argument. Its supreme appropriateness for log cabins is obvious. It seems equally at home in many stone cottages. If the degree of rusticity of the building is such as to suggest it, it may well be the first, best choice. The cabin owner is fortunate indeed, under these circumstances, who can turn to one of the commercial companies specializing in the manu-

[1] United States Department of Commerce, Wood Utilization, *You Can Make It*, Volume I; *You Can Make It for Camp and Cottage*, Volume II. Practical Uses for Secondhand Boxes and Old Pieces of Lumber. Washington: Government Printing Office, 1929 and 1930.

facture of log furniture, for then he will possess solid, finished, well-proportioned, and artistic pieces, which will match each other as to type and style, and which will provide a craftsmanlike refinement that is so often lacking in amateur efforts. If as a result of desire or necessity, however, the furniture is to be the product of his own hands, let it be remembered that it can be rustic and yet be genteel, with good lines, and in good taste. Above all, let it be hoped that the bizarre contraptions of crooked roots and the oddities of deformed branches be avoided. Such monstrosities may be passable out-of-doors as a sort of whimsy, but are scarcely becoming to the interior of even the crudest cabins.

Of the suitable woods for rustic in-the-round furniture, cedar or hickory usually gets the nod. Cedar peels beautifully to leave a clean smooth surface, which when oiled or varnished is bright and cheerful, and more finished in quality than much of rustic furniture. Items of it are also light to handle. The extreme tenacity of hickory bark, permitting the use of unpeeled poles, makes it a favorite for situations where the extremes of rusticity are in order.

Most rustic furniture is made of poles in the round, joined with beavered tenons. On occasion, half-round pieces are used for facings. Table and bench tops above cedar-in-the-round legs may be of milled boards polished to match, or of half logs edged smooth and doweled together, and supported by crosswise underpieces screwed in place. The latter treatment is massive and heavy, but thoroughly rustic.

The opportunity for original treatment in the rustic is seemingly limitless, but a conservative handling of a motif which in itself is unusual in furniture, will impress as less theatrical and in better taste, and will retain its charm longer. One will do better to follow the patterns of ordinary furniture, but allowing for the massiveness that in-the-round treatment usually requires. Proceeding in this way, any tool-skilled hands can succeed without need of special imaginative ingenuity, provided the beavered-tenon technique is understood and the mandate is followed that wherever a flat surface is to be joined to a round surface, the round must be flattened to receive it.

The customary height of a chair is 17 to 18 inches. A simple straight-backed chair may be more comfortable if it is made an inch or so lower at the back edge so that the seat slants downward; the back of a chair then has a corresponding backward lean. In such matters one will do well to study a

comfortable chair for angles and duplicate it. Tables are customarily 30 inches in height.

In small cabins of the hunter type bunks are often built in as part of the structure. When space is cramped, the bunks may well be of the double-deck type. Whether fixed or movable, and whether single or double-deck bunks or full-sized beds, interesting and attractive pieces can be fashioned from round poles. Perhaps more than other types of furniture, rustic or other handmade beds seem to carry a peculiar appeal. Permanent bunks often are equipped with drawers for storage underneath. In congested cottages, the possibility of the use of in-a-door or roll-away beds should not be forgotten, or even of beds that fold up against the wall and are covered with a drape or curtain. When bunks are installed in the main room, or several are in one bedroom, the provision of folding screens may be appreciated for privacy.

More refined cottages may find the rustic unfitting in furnishings. There, simple milled furniture finished to match may suit. The tradition of the locality may offer appropriate leads for style. In many areas the crafts products of the local craftsmen may solve the problem, such as, for example, the chairs with woven rush and splint seats so skillfully done by the natives of some of the mountain regions.

As to floor coverings, in most simple cottage situations, thickly rugged or completely covered floors are usually considered unnecessary, and often seem out-of-place. Throw rugs are usually sufficient. Indian rugs, while out of locale elsewhere than in the Southwest and therefore violating the principle of harmony with local background, nevertheless have an unusual knack of becoming at home in simple boarded interiors almost anywhere. Hooked rugs and woven rag carpets are equally gifted in this respect.

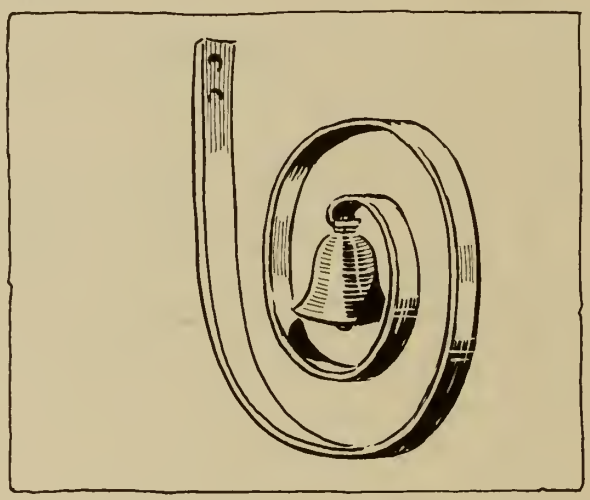
Color becomes necessary to liven up interiors made of natural products, to offset a certain dullness and somberness that often creep into such settings if the overall tone is left unbroken. The darkness characteristic of log cabins may be relieved not only by a more generous use of windows, but also by bright colors copiously yet tastefully employed. Drapes, hangings, chair and davenport cushions, upholstery coverings, and bedspreads can therefore make an important contribution.

Light fixtures of wagon wheels, cart wheels, spinning wheels, ox yokes,

ship steering wheels, wooden deck buckets, and the like, once novel and intriguing in many areas, have gone the way of many another innovation, in that they have been so widely copied that they have lost their originality and their early-settler symbolism through their very commonplaceness. If this is not the case in your area, hope for an unique chandelier may rest here. Floor lamps of rustic in-the-round may be placed beside furniture of this type. As a rule, however, simple, unpretentious light fixtures, making no effort to attract attention to themselves, may fit the cabin of natural materials better than extreme efforts for pioneer or rustic effect.

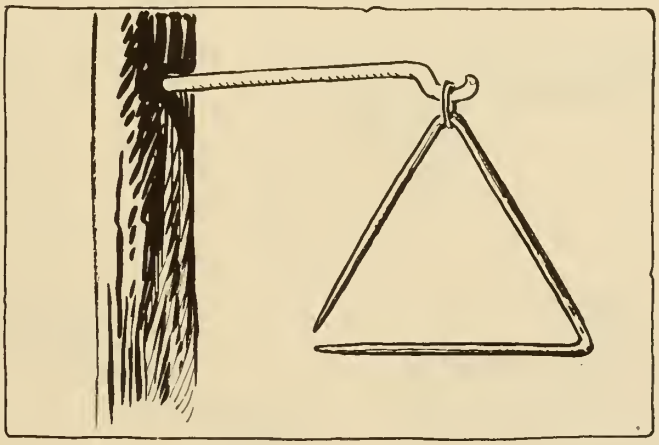
DOORBELLS AND CALLS

For a doorbell, a string of sleighbells hung beside the door is fitting in the North Country. Of the same kin, and appropriate almost anywhere, is a spiral of thin strap-iron, at the center of which a turkey bell or sheep bell is attached. By pulling the spiral down and releasing it, a vibration is started that sets the bell ringing.



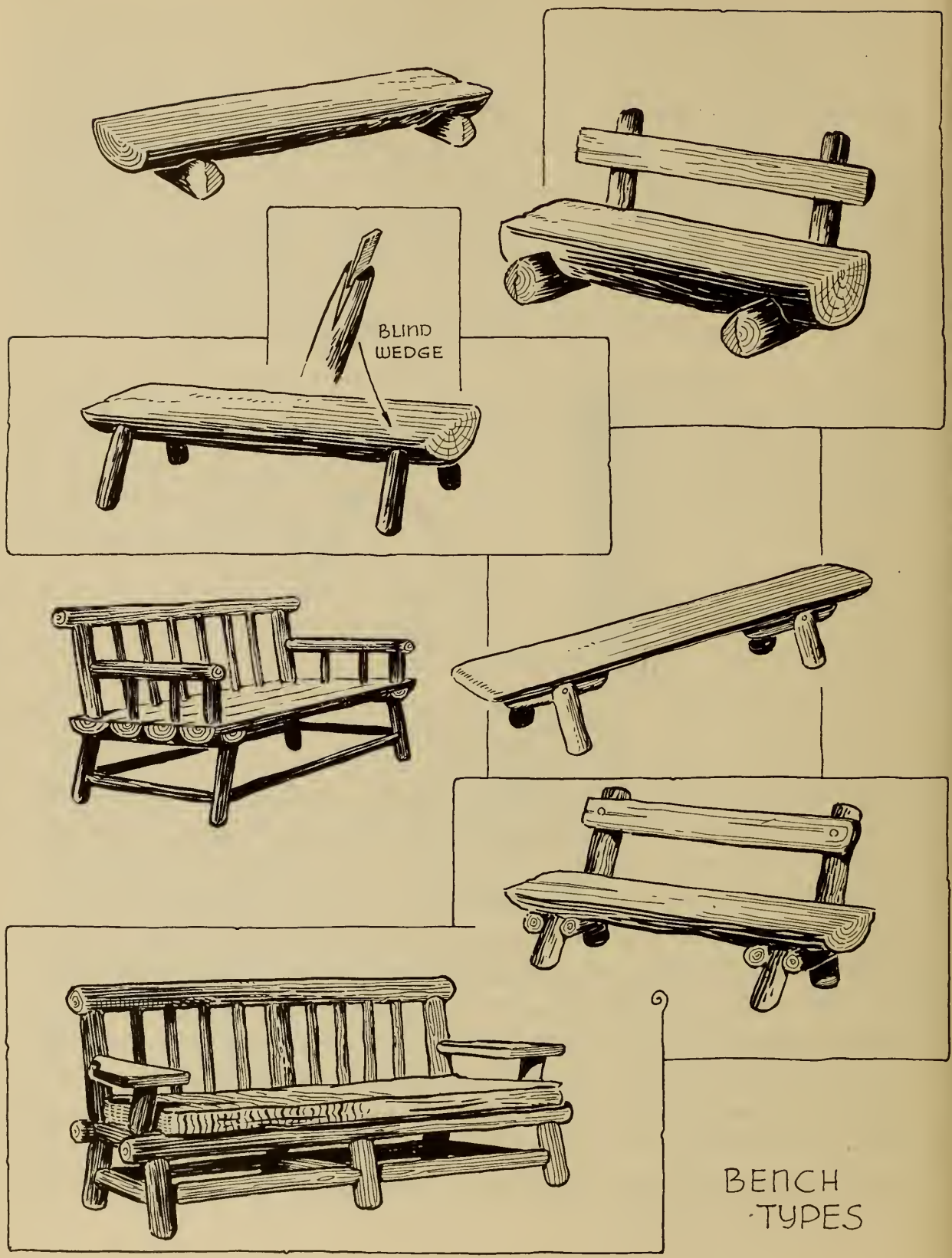
If the farmer's dinner bell seems inappropriate or undesirable as a dinner call, a western-type triangular gong will prove both colorful and efficient. A highly tempered steel bar is needed, three times as long as you wish the triangle to be. A triangle measuring 15 to 18 inches on each side is a handy size for outdoor use, in that it can be heard far and near, yet requires a smaller striking bar than the larger sizes, and less strength to ring it. The ringing quality hinges not so much on size as on the high temper of the steel. A hex-

agonal or octagonal bar is usually used in preference to a round one. Any old-time blacksmith will possess the know-how to turn the bar into a gong. He will understand well that the steel cannot be heated above a cherry red while pointing the ends and making the bends. He will understand, too, that no bend can be made while the steel is cold lest the temper be destroyed and the sound-giving quality thus reduced. When the gong is shaped up, it is again brought to temper heat and plunged in cold water. The gong should be hung by a wire from an iron bracket; any direct attachment to wood will reduce the volume and quality of the ring. It is struck by a highly tempered steel bar of the same size as the triangle itself, or slightly smaller.



OUTDOOR FURNITURE

The degree of development of the grounds will determine the types of seats and tables that will appear appropriate and native around the cottage. If the trees, shrubs and grass grow more or less in their native state, unmolested by man's desire to alter and improve, benches of nature's own material, left as nearly as possible as nature made them, and with as little evidence as possible of his cunning applied to them, will answer man's needs in a way least disturbing to nature's scheme. As the degree of development in clearing up and landscaping the grounds moves up the scale, and nature's handiwork is forced more and more into the background, the yard furniture can correspondingly take on increasing evidence of man's handiwork. Sophisticated lawn and beach furniture will appear as out of place in the unaltered natural settings as will the crude primitive types on the refined and landscaped lawn.


BLIND
WEDGE
BENCH
TYPES

Benches.—A sizable log split in half, resting on two crosswise stump supports, or on two imbedded rocks, is the extreme of simplicity and rusticity, and by the same token, the most unobtrusive and becoming. Notched in the back to receive two uprights, a split timber back can be added without disturbing the simplicity and natural quality. Gnarled or irregular logs seem better to fit, in that they escape the rigidity of the precisely perfect.

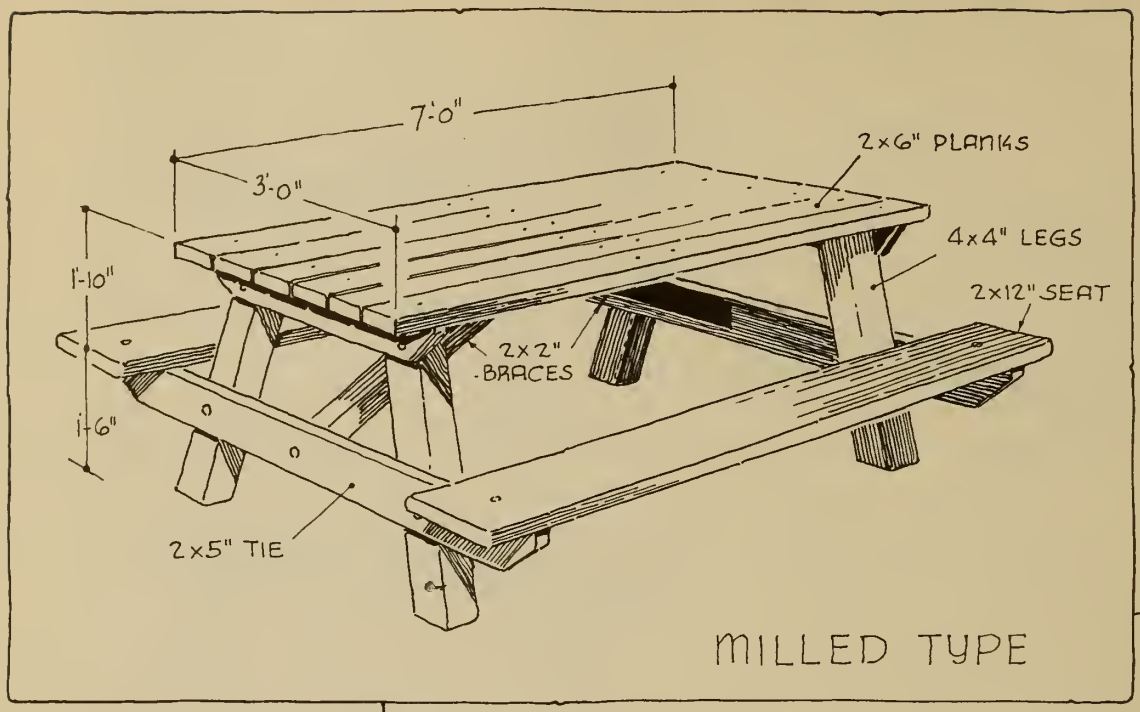
A touch of pioneer craftsmanship begins to appear in benches of split logs supported by legs, whether beavered and tenoned, or pegged or bolted. Here again, irregular logs are usually more comfortable in their informal lines.

Rustic cedar or hickory benches of the orthodox type are much coveted in semi-landscaped settings, symbolizing, as they do, the wildwood world, yet possessing refinement and obvious concessions to man's comfort. Conservative lines and orthodox patterns are more satisfying in these rustic in-the-round benches than are all evidences of overcunning in the use of curved and twisted roots and lattice-like entanglements of slender shoots.

Chairs.—From nature's stump to the peg-legged stool, and on to the finished hickory or cedar in-the-round chair, the rustic motif in chairs follows the same evolution as in benches, the appropriateness of each type depending upon the degree of primitiveness of the setting. Here one more easily and justifiably moves beyond the rustic without harm to the landscape picture, to include the ladder-back chair of the native craftsmen with its woven seats, the modern canvas chair, and even the convenient, durable, and practical metal beach chair.

Tables.—The picnic table of milled lumber with seats attached shown herewith, known to all who visit the public parks, has proven to be the most practical and inexpensive of the substantial outdoor dining-table units. Done in the rustic as in the twin sketch, it is more harmonious to the woodland background, but less handily moved about. Shifting away from these combinations to tables with no seats attached, the orthodox patterns of table construction can be followed by using rustic in-the-round under-construction and milled lumber tops.

Hammocks.—As popular in camp today as in the gay nineties, hammocks may be purchased with all the frills and fringes, or may be quickly made from the staves of an old barrel, with two lengths of clothesline run through a pair of holes drilled in the ends of each, and knotted to prevent slipping.



On the seashore, handmade sailors' hammocks with their artistic cordwork are popular and appropriate.

Rubber Beach Mattresses.—A few rubber mattresses, of the type used by campers who sleep on the ground, are delightful additions scattered about the lawn, garden and beach of the summer home. Whether for sun-bathing or just for lounging about on the ground, they are soft, comfortable, and

damp-proof. Here, the somber tones of the campers' mattresses give way to the bright colors of those made for beach use.

LIGHTING

The man who thinks of candles as the proper light for his cabin because the pioneers did it that way, is like the camper who looks forward to the pleasures of sleeping on the bare ground or on a few balsam boughs scattered about. Both have allowed the romantic symbolism of the thing to rob them of judgment—their daydreaming has blinded their eyes to reality. Both have but to try, to discover how quickly the journey they would take to a romantic world so different from city humdrum can crash on the hard rocks of discomfort. In every camping venture, the spirit seeks the romantic, but the body demands its creature comforts—a compromise must be struck to satisfy both. Of course the cottage can be lighted with candles as, just as assuredly, a man can sleep on the ground—both have been done for centuries. But the wildwood cottage will be more loved and will beckon perennially more compellingly if life can go on there without too much discomfort, and the routine chores are not too persistently annoying. Shall candles be discarded, therefore? By no means—they shall remain in abundance and be used for their charm and their symbolism, but not for their light. The best and most convenient means of light should be utilized and should be taken as a matter of course, and the pioneer atmosphere sought in other directions.

If the power line is not too far away, it by all means should be tapped. If this is impossible, the next best choice is a private generating plant, operated by a gasoline motor. These range in size from one just large enough to serve a small cabin with the usual electrical appliances, up to those capable of powering several buildings at once. The cost is in nowise exorbitant, and the results are good, as many a neighboring farmer will tell you and be able to demonstrate for you.

Of lamps, if lamps it must be, kerosene may serve with greater convenience even if with dimmer illumination, but the best is the gasoline lamp which uses a mantel to throw an intense white light. Several of these about the cottage, plus a lantern or two of the same type for outside use, will drive out the darkness and replace the gloom with brightness and cheer.

Lighting by flame, whether candle, oil or gasoline is in itself a constant fire hazard. If such means of illumination is used, a portable fire extinguisher should be available and readily accessible. Without fire-fighting equipment, an accidental upsetting of a lamp could cause a serious conflagration and put to naught many days of hard labor.

KITCHEN CONVENIENCES

Lack of kitchen conveniences can go far toward making life in the cottage a hardship rather than a joy. The routine work of getting out three meals day after day puts the matter on a very different level than improvising for a meal or two for a picnic or weekend camp-out. Thought and planning should go into the kitchen—its space, cupboards, tables, storage areas, and above all, its stove—with a view of utilizing as many of modern conveniences as conditions will permit.

Oil-burning stoves are common in camp and, if of the modern cabinet type, are not only attractive but may serve with less discomfort than other available sources. "Bottled gas" coming in liquid form in a metal tank, and attached to the stove with plumbing similar to that used for a city gas stove, is an excellent source of heat, but the proper stove should be selected for it, and thought given to the proximity of fuel replacements and of servicing. Wood-burning kitchen stoves, while requiring more work in firing, should not be sold short, especially if much cooking is to be done. They have the added advantage of not only serving as the cookstove but of helping to heat the cabin as well—a questionable asset in summer, but a much appreciated one at other times.

Kitchen matches should be kept covered and placed in metal containers. Innocent field mice and squirrels have been known to cause serious fires by their night exploits on pantry shelves.

REFRIGERATION

If electricity is available, this important matter is settled quickly by the use of the usual electric refrigerator. Next in order of convenience would be the gas or oil-burning refrigerator. The oil-burning type is simple of operation, requiring no connection in that only an oil flame is required, and is efficient. The different makes vary in detail, some requiring a constant flame,

others a flame for only a short time each day; the latter have to be lighted each time but extinguish themselves when they have burned long enough.

The icebox is the commonest type of refrigeration in out-of-the-way areas, and if on a lake where ice can be cut and stored in the winter, may prove altogether desirable. An icehouse would have to be built for storage, but this is a small venture and, once built, will serve for years. It should be located in the shade and may be on the level or partially sunk in the ground, or built in the side of a hill, as desired. Well-calked logs, if available, will make the best icehouse. The door should be of lumber made of two layers and the hollow center filled with sawdust. A good size is 12 feet square and about 7 feet high. The floor should contain wide cracks for drainage, and a hole should be left in the peak of the gable for ventilation. It should contain ample sawdust so that each block of ice can be packed on all sides so as not to touch other cakes. The ice should not be placed nearer than eight inches to the sides and this area should be well packed with sawdust.

If all of these methods are impractical, one may have to resort to a spring-box in which to keep milk, butter and meat cold, with possibly the addition of a vegetable cellar sunk in the ground or in the side of the hill for less perishable materials. An ordinary large packing box will make a spring-box, set in the water, preferably cool running water, with holes bored in it so that the water can flow through. Shelves hold the food. The box will serve best if placed in the heavy shade.

A refrigeration device relied upon in the remote logging camps is an elaboration of the simple evaporation method known to all trailwise campers. A little screened house is built, perhaps six feet square, consisting of floor and roof, with sides open and screened. It is placed where the breeze will strike it and is usually elevated about six feet off the ground. Meat and other perishables are suspended from the middle of the roof. A large muslin sack then covers these food supplies, tied at both top and bottom so as to completely enclose them. The sack is kept moist either by causing water to drip on it, or by placing a container at the top of it in which a corner of the sack is submerged. The moisture will spread so as to keep all parts of the sack damp. The evaporation of the water from the cloth will keep the inside surprisingly cool. Food can be kept unspoiled for several days in this way, with no more care than to replenish the water supply when needed.

WATER SUPPLY

Reference has already been made to the importance of a plentiful and pure water supply, and to the necessity of having the water tested for purity at regular intervals. Installations for running water in the cottage do not constitute a formidable undertaking in most situations, if the water supply is adequate and the expense of a motor and storage tank is within the range of the budget. In an important undertaking of this sort, it is recommended that the advice of the best local plumbers be sought in determining and planning the type of installation best suited, considering the source and abundance of the water supply, the size of the cottage, and other pertinent factors.[2] His advice, too, will be useful in determining the type of hot water installations which will best serve the need in each particular situation.

SEWAGE DISPOSAL

Regardless of how isolated the place may be, the use of the old-fashioned outhouse is strongly to be condemned. If there is no other choice, it should be placed far from all wells and cisterns, as many a farmer has found to his sorrow, and should be on the down slope away from them. Moreover, it should be tightly screened. In all but the most inaccessible areas, it should not be necessary to fall back onto this last resort, for chemical toilets of various makes are available rather inexpensively, which are entirely sanitary, and far more convenient in that they can be installed in the house or in a small outhouse attached to, or in close proximity to it.

If the cottage is equipped with running water so as to make possible modern sanitation, the use of septic tanks will be necessary. Although steel tanks may be purchased for this purpose, it is more customary to build them locally of concrete. Whichever of these means is used, the advice and assistance of the best plumbers and sanitary authorities the locality offers should be utilized, for proper sanitation is such an all-important matter that it should be safeguarded by all possible means. It is strongly urged that in selecting the location and the type of equipment, and in the installation of it, local assistance of unqualified experience be employed. Plumbing houses

[2] Full details may be found in George M. Warren, *Farmstead Water Supply*, Farmer's Bulletin No. 1448, United States Department of Agriculture. Washington: Superintendents of Documents, 1944.

quite generally offer plans, and local plumbers in areas where septic tanks are commonly used will well understand their installation.[3]

The location should not be closer than 100 feet to the cottage, and farther away if possible. The concrete septic tank is usually rectangular in shape, about twice as long as it is wide, and must be absolutely watertight lest the area under and around it become a cesspool. As to size, 10 to 15 cubic feet are usually allowed per person inhabiting the house. A scum will form on the surface of the contents of the tank which should not be broken or disturbed except when absolutely necessary. For this reason the inlet and outlet pipes are usually angled downward about one-third the depth of the sewage so that the flow will not disturb the scum.

There will, of course, be an overflow from the tank, which is piped away from it and permitted to seep into the soil. One of the easiest ways of disposing of it is to pipe it into a dry well, loosely boarded or bricked up.

In large establishments, it is well to dispose of the waste water from the kitchen and lavatories separately from the actual sewage. In this case, the water can be piped into a dry well with complete safety, while the sewage is carried to the septic tank.

These tanks and dry wells are placed beneath the surface of the ground, usually about 18 inches, and are covered with earth so that their presence cannot be detected. It is well, however, to provide a manhole above the septic tank so that it will not be necessary to tear up the earth each time it becomes necessary to inspect it.

BOARDING UP BETWEEN SEASONS

Shutters for all windows become a must for cottages which are in use only a part of the year, and should be provided when the place is built. In the snow country, storm doors should also be considered, because fine drifting snow, driven by the wind, will find its way through most single doors, as well as around most windows, to wet the floor and furniture when the thaws come. The fireplace chimney should also be closed by placing a board of proper size over it, held in place by heavy rocks. If the fireplace has a damper it should be closed.

[3] For details of rural sewage disposal, see R. B. Wiley, *Sewage Disposal for the Isolated Dwelling and Small Institution,* Engineering Experiment Station Bulletin No. 6. Lafayette, Indiana: Purdue University, 1920.

It is well to prepare a list of all that must be done in closing the place, and to spread the process of closing up over a period of days, lest such important things be neglected as shutting off the water and draining the pipes, emptying all vessels, covering upholstered furniture and rolling up rugs, covering up mattresses lest mice ruin them, removing all foods, and so on without end. Rust and mildew are no respecters of personal property.

With vandalism what it is, it is rarely safe to leave any place unprotected. The services of a nearby permanent resident may well be employed to make frequent visits to the place to inspect its condition and examine its contents.

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